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*United States Navy*  
**MEDICAL NEWS LETTER**

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ceptible to use by any officer as a substitute for any item or article, in its original form. All readers of the News Letter are urged to obtain the original of those items of particular interest to the individual.

*Change of Address*

Please forward changes of address for the News Letter to Editor: Bureau of Medicine and Surgery, Department of the Navy, Washington, D.C. 20390 (Code 18), giving full name, rank, corps, old and new addresses, and zip code.

**FRONT COVER: NAVAL HOSPITAL, LEMOORE, CALIFORNIA.** The former Station Hospital at the Naval Air Station, Lemoore, California was redesignated as a Naval Hospital and commissioned as such 1 July 1968. The buildings were constructed and first occupied in 1961, and the outpatient and inpatient load gradually increased during the next several years. The mission is to provide medical care to all authorized personnel, including active duty, dependents and retired, in the area of the air station. The hospital is a BUMED command and support facility under the area coordination of the Commandant, Twelfth Naval District. The Dental Department is presently an organizational segment of the Naval Air Station, but the Senior Dental Officer has additional duty to the Naval Hospital where he is Special Assistant to the Commanding Officer for dental matters. At the same time a junior dental officer and a dental technician previously assigned to the air station command are assigned primary duty at the hospital, with additional duty to the air station. Patients with chronic conditions requiring care beyond the capabilities of the Lemoore Naval Hospital are transferred to the Oakland Naval Hospital or to a special treatment center. The hospital has a normal bed capacity of 67, an expanded bed capacity of 91, and, as of 1 August 1968, 40 operating beds.

The issuance of this publication approved by the Secretary of the Navy on 4 May 1964.

## EXPERIENCES WITH AN ALCOHOLIC REHABILITATION CLINIC

*CAPT J. J. Zuska, MC USN, Naval Station, Long Beach, California.*

In February, 1965, the Dispensary, Naval Station, Long Beach, California, sponsored a weekly meeting of Alcoholics Anonymous aboard the station in an effort to establish a place to which active duty men with drinking problems could be referred and receive treatment. This meeting was led by a retired Naval Officer and a rotating group of arrested alcoholics from the community. Initially, men were referred to this meeting by the medical officers and later by commanding officers of ships and stations when they learned of the meeting and its successes.

Attendance at this weekly meeting of Alcoholics Anonymous progressed from one or two men at the beginning to twenty-five to thirty in July 1967. By this time it was apparent to the medical department that some men were recovering from severe alcoholism and that there were a considerable number of men in the area afflicted with this disease.

Results of this program were as follows: (2/1/65 to 8/1/67)

	<i>Improved</i>	<i>Unimproved</i>	<i>Unknown</i>
Navy & Marines	23	11	31
Army	1	0	0
Retired	6	2	9
Total (83)	30	13	40

"Improved" refers to abstinence or an occasional episode of drinking and return to abstinence. "Unimproved" refers to no essential change in the pattern of previous drinking. The "Unknown" group refers to men who were transferred or retired and left the area. Their status is uncertain but there are undoubtedly some in this group who are improved.

In August 1967, an alcoholic rehabilitation clinic was started at the dispensary. One of our patients who had remained sober for a year volunteered as a counselor and was assigned temporary additional duty to the dispensary by his ship with approval of the squadron and type commanders. An HMC interested in alcoholism was later added to the staff and a separate building was provided by the command to house the clinic.

Results of this clinic for the past year were as follows: (8/1/67 to 8/1/68)

<i>Total Patients</i>	<i>Im- proved</i>	<i>Partial Improve- ment</i>	<i>Unim- proved</i>	<i>Un- known</i>
Navy & Marines (80)	43	9	9	19

The above figures of results achieved during the past year are believed to be significant because 90% of the patients were referred to the clinic by their commanding officers, often under a suspended sentence. The fact that men can be taught in a month or two to control their drinking, even when they do not at first desire to do so, is of importance in realizing that treatment can begin earlier than formerly thought. It does not seem necessary to wait until the man "hits rock bottom".

Studies in progress indicate that a large percentage of unauthorized absence is due to alcoholism. Therefore, treatment of this disease should reduce the number of cases referred to Mast as well as keep more men at their duty stations.

The medical department has entered into a dialogue with commanding officers in the area in an attempt to help them recognize the alcoholic and to encourage them to refer these men to the medical department for treatment rather than to rely on punishment which often increases the resentment and anxiety of the alcoholic and is not effective in controlling his drinking. The use of the suspended sentence, coupled with official referral to the medical department, has just enough pressure on the alcoholic to obtain his cooperation in treating his illness.

One of the most widely quoted definitions of alcoholism is that by Mark Keller of the Center of Alcohol Studies at Rutgers University:

"Alcoholism is a chronic disease, or disorder of behavior, characterized by the repeated drinking of alcoholic beverages to an extent that exceeds customary dietary use or ordinary compliance with the social drinking customs of the community, and which interferes with the drinker's health, interpersonal relations or economic functioning."

Alcoholics are treated as inpatients or outpatients depending on the severity of their illness. Patients



with severe withdrawal symptoms or significant brain or liver impairment and those whose ship's movements interfere with the treatment program are admitted and treated as inpatients. Men without obvious impairment are managed on an outpatient basis and are often restricted to their ship or station because of recent disciplinary action. They are released to the dispensary for daytime and evening treatment sessions and returned to their command each time for custody.

At the present time the following routine is practiced:

1. Review of the service record by a counselor and completion of several questionnaires.
2. Interview by the Senior Medical Officer.
3. Physical examination by an internist.
4. Psychiatric evaluation and short term therapy when indicated.
5. Enrollment in a weekly group therapy session.
6. Daily counseling and educational film or instruction in the twelve steps of Alcoholics Anonymous.
7. Attendance each evening at a different meeting of Alcoholics Anonymous in the community and one night each week at a meeting aboard the station.
8. Wives of alcoholic patients are encouraged to attend a weekly meeting of Al-Anon at the dispensary where they are taught to understand the problems of the alcoholic and how to be supportive.

The goal of our clinic is permanent abstinence but we are also satisfied with continued drinking which has become modified to the point where work performance and family life are improved. As alcoholic patients so often put it: "our drinking is loused up". This indicates that the alcoholic has learned what loss of control of drinking is doing to him.

Relapses are common and must in each case be used for therapeutic benefit by a thorough discussion of the relapse both in group therapy and with the individual counselor. One or two slips on the program can result in greater insight if skillfully explored.

The average patient is under close supervision of the medical department for 30 to 60 days. At that time an evaluation is made by the physicians and counselors toward the following decisions:

1. Fit for duty.
2. Separation from service recommended.
3. Needs further treatment before a final evaluation can be made.

Disulfiram (Antabuse) is helpful particularly in the young impulsive alcoholic who cannot control

his drinking. The drug is prescribed by the internist and is given by an HMC who is the administrative head of the clinic. A tablet of Antabuse is ground and suspended in water and given daily to the patient to drink under observation. The patient is required to remain in the clinic for 30 minutes after taking the drug to prevent self induced vomiting. In a few cases men have been returned to duty with the recommendation that Antabuse be continued for 6 months.

Alcoholics over 35 years of age, especially senior petty officers, do not often require Antabuse. They are more cooperative and achieve better results in the program, particularly if their families are still intact.

Alcoholism is present in about six percent of the adult drinking population. The true extent in the Navy is unknown but from the experience in Long Beach it is known to be significantly prevalent at all levels. It is causing personal and family suffering, inefficient work performance and needless disciplinary procedures. Physicians could do a great deal toward rehabilitating alcoholics if they overcome their own prejudice and apathy toward this disease. One of the local senior medical officers when informed of the number of patients being treated in our clinic remarked, "Aren't you afraid that all those drunks down there will go ape?"

Actually, we have found that alcoholics are not difficult to work with and are grateful and responsive when they have learned to control their drinking. Many of them are talented, creative individuals who are above average in intelligence.

Medical departments having inpatient facilities should admit alcoholics who are in need of detoxification or "drying out" in order to control the severe withdrawal symptoms that may develop. There is a golden opportunity during this period of severe hangover to approach the patient with a sobriety program and a good chance that he will accept it.

The necessary ingredients for the formation of an alcoholic rehabilitation clinic are:

1. Command support.
2. Medical department interest.
3. Concern for the individual alcoholic and his family.

Suggestions for medical officers desiring to form a clinic:

1. Attend several AA meetings to observe the philosophy and modus operandi.
2. Locate an active duty AA member who can be made available to assist you. This can be done by contacting a local AA chapter.



3. Start an AA group at your activity and refer men and women with drinking problems to it.

4. Read the suggested reference list, interest your staff in alcoholism and start a treatment clinic to supplement the AA meeting.

5. Give a series of briefings to local commanders on alcoholism, its recognition and management at the command and division officer level.

### Conclusions

Experience with the treatment of alcoholism in the Long Beach, California area indicates that treatment facilities can be provided with little cost or effort and that good results can be obtained by clinical cooperation with an Alcoholics Anonymous meeting. Alcoholism is present in a significant degree among Naval personnel and its recognition and treat-

ment would result in considerable monetary savings as well as improved health and well-being.

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## USES AND ABUSES OF PSYCHIATRIC CONSULTATION

*John J. Schwab, MD, and Judith Brown, MA, JAMA 205(2):65-68, July 8, 1968.*

The psychiatric consultation is used for diagnosing and treating patients, for education, and for clarification of staff problems. The referring physician abuses the consultation when he (1) does not make explicit the reason for referral, (2) uses referral as a last-resort measure, (3) ignores the nurse's role, (4) fails to refer some dying patients, (5) is inconsistent in referring patients with personality disorders, or (6) misdiagnoses organic brain syndromes. The psychiatrist abuses the consultation by (1) delaying his response, (2) not obtaining a comprehensive view of the patient—failing to review the medical record, (3) writing a lengthy consultation note filled with jargon, (4) "taking over" the referring physician's patient, or (5) not using the consultation for teaching and learning. Correct use requires proper timing, understanding the psychosocial background, and implementing recommendations for continuing care.

Although the psychiatric consultation is conventionally used as a resource for diagnosing and treating patients, it is also used for the staff, for education, and for the clarification of disruptive ward

situations. For each of these uses there are common abuses.

Correct use of the consultation for diagnosis involves more than asking merely for "patient evaluation"; the consultation request should pose questions which are pointed and searching, such as, "is psychopathology retarding recovery" (eg, when a surgical patient interferes with wound healing); or, even more definitely, such questions as, "What is the source of the patient's anxiety?"

Abuses occur when the referring physician fails to delve into a personal history which, for example, might have revealed that a patient has always reacted to illness with excessive dependency; or, when the physician mistakenly thinks of diagnosis as the search for a single etiologic factor and inquires if the illness is organic or functional, by which he too frequently means, is it real or imaginary?

Concerning treatment, in addition to asking how his patient can receive psychotherapy and requesting advice about medication, the referring physician should use the consultation to better understand the patient's inimical attitudes toward treatment. He should ask how he can solicit the patient's cooperation, and whether a contemplated procedure should be undertaken. (For example, is there risk

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of suicide? How can he use the patient's personality assets in the service of recovery?)

#### Consultation Should Not Be A Last-Resort Measure

The consultation should also be used by the referring staff for clarification and education, particularly when they hold discrepant views of a patient; such differences can produce dissension. For example, those at the top of the ladder may neither see the psychopathology nor accept others' interpretations of disturbed behavior. As a consequence, the patient may not be referred. In those fortunate instances when the consultant is called, he should address himself to the problems among the staff as well as to the ostensible reason for the referral. As illustrated by the following case, consultation was used as a last-resort, desperation measure for patient 1 because the referring staff failed to interpret or even collect relevant data.

#### Report of Cases

The referring physician sent a note saying, "Please take this hostile man off our hands—he is paranoid, in trouble all the time, and we can't put up with it any longer." The consultant found that patient 1 was satisfactorily recovering from surgery for a peptic ulcer. He had a long history of failing to follow medical advice, was severely depressed, and even suicidal. But, for three weeks, the patient's relationships with the staff had been deteriorating, and staff morale suffered. Physical combat had been a mode of life for patient 1; his threats created fear, then retaliatory anger toward him, and finally staff dissension due to their displaced anger and guilt. The consultant was used as a troubleshooter for these staff problems.

The consultant discussed immediate management with the staff; he arranged for psychotherapy, drug therapy, and follow-up medical care. Although the consultation was helpful, it is clear that a much earlier referral for *depression*, rather than *staff exasperation*, would have prevented the growth of hostility and staff dissension.

Among the staff, varying tolerance levels for psychopathology affect referral patterns. Tolerance levels are influenced by frustration arising from difficulties in establishing an exact diagnosis, finding an unexpected or grave disease, dissatisfaction with response to treatment, overwork, and personal conflicts. When the referral is made *only* because a

tolerance level is exceeded, it is wrongly used; the call for consultation may be both hostile and punitive.

#### Proper Use of the Consultation

Proper use of the consultation involves thought and method, as illustrated by the case of patient 2, a 23-year-old, eight-month-pregnant woman who was hospitalized with abdominal pain. Her referring physician asked incisive questions which indicated that he detected the emotional problems involved and sought specific solutions.

1. Is she retarded or is she schizophrenic?
2. Will phenothiazines be helpful?
3. What plans can we make for her children and the new baby in view of the marked social pathology?
4. Should sterilization or family planning be considered?
5. Is there danger this woman will harm herself or her children?

In his request, the referring physician should furnish the psychiatrist with the results of his work-up, summarize the patient's current medical status, and indicate his plans for future management. Importantly, he should mention how he feels about the patient and how the patient is responding to him. The physician of patient 2 noted that her physical condition was improving satisfactorily, told that she had had a deprived and traumatized life, described two of her recent hallucinatory episodes, and mentioned that he felt sorry for her and that he wanted to be helpful. He had gleaned evidence of severe socioeconomic deprivation, psychosocial stress, and clear-cut mental illness; and, the consultant's more detailed history was corroborative.

Correct timing of the referral is a crucial factor in using the consultation effectively. This patient's early referral, within 48 hours of admission, maximized the therapeutic efforts. For the hospitalized patient undergoing a medical work-up, referral should be made as soon as the physician suspects that the patient is psychiatrically ill, or that psychosocial stresses are influencing the illness. The all too common practice of postponing referral until the diagnostic work-up has been completed or until the patient is ready to leave the hospital should be deplored: the referring physician is deprived of the consultant's opinions at a time when the patient is more amenable to psychiatric intervention; and the psychiatrist has little opportunity for follow-up. Early referral also enables the psychiatrist to work with that fairly large group of patients whose psychopathology will be temporarily suspended after a few days of hospitalization.

The consultant diagnosed a schizophrenic reaction. Patient 2 improved on a program of psychotherapy focused on current realities, discussions with a social worker, and increasing doses of chlorpromazine. She was introduced to a public health nurse who will make home visits to prepare for the delivery and to keep a close check on her health. She was given scheduled appointments to the psychiatric outpatient clinic. Although patient 2 has had severe difficulty with her living relationships (giving away her children and viewing dead relatives as "friendly") there is strength in her marriage, perhaps based on the shared experience of deprivation. Thus, the consultant believed that she should keep this baby and that joint conferences with the husband could focus on family planning. The degree of social pathology and the history of violence evidenced some risk to others, but the patient responded to follow-up visits. Mobilizing resources to relieve the sociocultural deprivation was therapeutic and reduced the danger of violence.

Patient 2's referring physician made good use of the consultation. He detected psychopathology early and timed the referral well: the patient's physical condition had improved so the consultant could work with her; yet, the consultant had sufficient time to implement a treatment program. The physician's questions showed his intent to continue caring for the patient; the perspicuity of the questions stimulated the consultant to use all his resources for patient care; and, the consultant's answers had obvious educational benefits.

In contrast to the gains derived from the correct use of the referral, certain common abuses diminish the value of the consultation.

#### Common Abuses of the Consultation by Physician

1. *The "Either/Or" Question.*—Asking the either/or question (organic or functional?) of the psychiatrist demands an impossible task. Close medical follow-up and a more detailed personal history from the patient or family will clear up most problems with diagnosis; multiple etiologic factors are usually responsible for illness.

2. *The Social Distance Problem.*—Our visual acuity for spotting some emotional illnesses seems to be diminished as the social distance between the physician and the patient increases. For example, we found that on a medical unit where psychiatric consultations are freely available to all patients, only 17 percent of the depressed lower class patients were

referred in contrast to 33 percent of the middle, and 100 percent of the upper class depressed.

3. *Ignoring the Nurse's Role.*—Bursten notes that even when the nurse is the real agent in initiating referrals, this is seldom recognized. The nurse should be encouraged to report about her patients' emotional distress. Because she has close hour-to-hour contact with patients, she is in a particularly favorable position to detect psychopathology; her recommendations should be solicited.

4. *Inability to Evaluate Denial.*—Unfortunately, it seems that if a patient denies anxiety and the need for help he probably will not receive, or even be offered, a psychiatric consultation. In one study we found that only patients with overt anxiety, receptive of help, received consultations. We also found that hospitalized patients with cardiac disease, as a group, did not receive attention for their pervasive sense of fear and fright because they presented cheerful facades; identifying their anxiety was difficult for the attending staff who could not see through the denial.

5. *Failure to Refer the Dying Patient.*—Most dying patients show surprising emotional strength and do not need psychiatric consultation. But, there are at least three circumstances when dying patients should be referred: when there is a severe management problem, flagrant anxiety, or when the patient's relationships with family and friends have been seriously disrupted and he is dying alone.

6. *Incomplete History.*—We mention this only to condemn it. The physician who asks the psychiatrist to obtain the personal and family history usually does so in an effort to shield his own feelings which erupt when a patient relates personal distress. In this respect, countertransference may also be an important factor. The 35-year-old physician may hesitate to question a 55-year-old woman about sexual matters because he views her as a mother figure.

7. *Inconsistent Referral of Patients With Personality Disorders.*—Some physicians refer patients with disturbing personality disorders simply because they cannot tolerate their own feelings toward these patients. Often, they do not want to use their feelings as data because medical training emphasized the validity of the objective and the factual. They prefer to request consultation, and insist that the psychiatrist "take over." But, such referral patterns are inconsistent; in other cases, the physician may refuse to acknowledge his hostile or ambivalent feelings and overlook the personality disorder which might have benefited from psychiatric intervention.



8. *Not Diagnosing an Organic Brain Syndrome.*—In a review of 600 consecutive psychiatric consultations, Reding and Daniels found that 10 percent of the patients were suffering from organic brain syndromes and that in one half of the group, the referring physician missed the diagnosis. Studies indicate that when the organic brain syndrome is encountered, it is of serious import. Considering only first admissions to Barnes Hospital, Guze and Cantwell reported that the mortality for patients with organic brain syndromes was 17 percent compared with the general mortality of 4 percent. Age was not a major factor; 13 percent of the patients under the age of 50 with organic brain syndromes died.

#### Common Abuses of the Consultation by the Psychiatrist

We have outlined some of the abuses of the consultation attributable to the referring physician. The consulting psychiatrist also has responsibilities, and if they are improperly discharged, other abuses are the consequence.

1. *Delay.*—Frequently psychiatrists handle consultation requests in too routine a matter; physicians complain of tardy responses. Tardy responses to consultation requests increase anxiety in the referring physician as well as in the patient. The consultant should respond within 24 hours. When this is not possible, and particularly for inpatient consultations, he should notify the medical and nursing staff of the exact time he will see the patient. Another alternative is to see the patient briefly for a five-to-ten-minute introduction and then inform both the patient and the referring physician that he will return at a specified time.

2. *Failure to Review the Medical Record.*—Complete familiarity with the medical record is essential for the psychiatrist. Otherwise, the psychopathology he observes may be disproportionately weighted; then he is too prone to label the whole case psychogenic. Reviewing the record educates the psychiatrist; it keeps him in touch with general medicine and provides him with a "common ground" for his activities with referring physicians.

3. *An Ill-Framed Consultant's Note.*—The note should be concise, emphasizing the significant findings and offering a coherent portrayal of the patient. It should (1) answer specific questions raised by the consultant; (2) present, in precise terms, factual data about the patient which support the psychiatrist's formulation and his diagnostic impression; (3) respond to unstated, implicit concerns of the

consultant; and, (4) include the consultant's outline for treatment and disposition. His recommendations should be specific.

4. *Taking Over the Consultant's Patient.*—In most cases, the consultant will continue to be the primary physician. Occasionally there are exceptions; the consultant may indicate beforehand that he wants the psychiatrist to implement any program he deems necessary and to discuss it with the patient. However, unless there has been explicit agreement on this point, the consultant must review his findings with the consultant before he informs the patient of plans for therapy.

#### Conclusion

The abuses which we have outlined exemplify the defects inherent to any new field of clinical work. By Lipowski's definition, the psychiatrist is a consultant in *nonpsychiatric* territory: his paradoxical role is but several decades old. The consultant sees patients who, if emotionally ill at all, also suffer from discrete or concomitant medical illness which is often severe. He must deal with the whole patient, not only applying his particular skills, but usually surveying the work of other specialists. Frequently, the call for his services is complicated by myth, hostility, ward dissension, and even desperation. As the psychiatrist has become more accustomed to his new role, and the referring staff more accepting, both have been able to use the consultation to improve patient care; and, with each fresh look at the consultation process, its use is enhanced. But in so new an endeavor, the abuses—some known and others still obscured—abound. Both the referring staff and the psychiatrist must be alert to these abuses, be willing to identify them, and work to overcome them. Presently, self-conscious and often creative scrutiny is improving the consultation process. And we are seeing the role of the psychiatric consultant, as Kaufman envisioned it, come into its own: the consultant is "of practical assistance in the total evaluation and furtherance of treatment of any given patient."

This investigation was supported in part by Public Health Service research grant MH 2152-03 from the National Institute of Mental Health, and by the Florida Council on Training and Research: Division of Mental Health.

#### Generic and Trade Names of Drug

Chlorpromazine—*Thorazine*.

(The references may be seen in the original article.)

## ABDOMINAL PAIN—MECHANISMS AND PHILOSOPHIC CONCEPTS\*

Henry L. Bockus, MD, Philadelphia, Pennsylvania, Lahey Clin Found Bull  
17(2):77-88, April-June 1968.

Surgeon Warren, Bostonians, colleagues from elsewhere: I am indeed happy to participate in this memorial to one of the greatest surgeons of this century. I also was honored by being asked to contribute to his memorial volume at his sixtieth birthday. I knew Frank very well and could spend a great deal of time extolling his accomplishments. I can only say that he had an effect upon me very much the same as Sara Jordan had. I always felt when he left me that he left something with me—something for me to think about—Frank had this faculty. Of course, one of this greatest achievements was discovering Sara Jordan and leading her into the specialty of gastroenterology where she became one of the most eminent gastroenterologists in this world. Frank has left a vital monument—his work goes on in this great institution.

Caring for those in pain is the topic selected for this talk tonight. This is probably the thirty-seventh time that I have lectured on pain—and I am not sure that I have improved upon it. Some of you who were graduate students at the University of Pennsylvania will probably remind me that it is very different from the one that was delivered in 1930 or thereabouts. I would like to speak not as an authority, not as a person who is knowledgeable from the standpoint of neurophysiology, neuroanatomy, anesthesiology, and all of the other basic areas in which pain is studied; I prefer to talk to you as a practitioner who has been interested for quite a few years in the analysis of patients' complaints.

Pain is the central problem in medicine. If it were not for pain, there would not be any medical science, and I suspect there probably would not be any physicians. Pain is a subjective sensation; it is very difficult to define and oftentimes more difficult to assess. It was not one of Aristotle's five special senses. For the ancients, it was an emotion, a feeling state, something unpleasant, the opposite of pleasure—a not unrealistic concept, actually. It was in this vein that Bentham reminded us that nature has been placed under the government of two sovereign masters—pain and pleasure. Those who have not experienced pain are less appreciative of pleasure—I am quite sure of that.

Gradually in more recent times these concepts have been discarded and pain began to be discussed from a physiologic standpoint. The physiologists, in their simplest terms, defined pain as the perception of a noxious stimulus. A little later a dictionary definition which I should like to quote broadened this concept of pain—it was from Webster at the turn of the century and went something like this: "a sensation varying from prick to ache commonly aroused by a stimulus that injures or nearly injures the tissues, usually but not always unpleasant, leading to avoiding reactions." A nice definition, but we have gone a little beyond that now, utilizing the thesis of Hardy, Wolff, and Goodell. I like to think of pain as they did, as an *experience* comprising not only the perception of a noxious stimulus but the results of that perception in terms of associated secondary physiologic and psychologic reactions and their consequences. It is important to have that concept of pain. However, even this definition is not complete since it does not embrace psychogenic regional pain that occurs in the absence of a peripheral noxious stimulant.

### Philosophic Concepts of Pain: Beneficent vs. Deleterious Effect

Now I should like to comment briefly on two so-called basic philosophic concepts of pain. The first is that it is beneficent because it brings the patient to the doctor and the second is that it is destructive and harmful. In the first category, *beneficence*, all of us probably remember that quotation of Hilton, "Every pain has its distinct and pregnant significance if we will but carefully search for it," and also Sherrington's definition, "The psychic adjunct of an imperative protective reflex." These two definitions indicate quite well the importance of pain as a warning signal.

How fortunate is the patient who consults a physician who has a good understanding of the clinical aspects of pain mechanisms and their vagaries—the physician who is steeped in the clinical disciplines of Sydenham and Laennec—the physician who goes to the laboratory only after a careful historical and clinical analysis. I say how lucky is the patient who finds such a physician. I hope 50 years from now there will be a few of them left; they seem to be

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diminishing in number. Diagnostic acumen is more closely related to expert clinical appraisal than it is to the interpretation of laboratory data, particularly for diseases of the abdomen because so many abdominal affections are functional and in so many instances the physical examination and the laboratory studies are not very helpful. If there was one person in America who stressed that over and over again it was your own Sara Jordan.

Unfortunately, this beneficent aspect of pain has some flaws—everything does I suppose. Sometimes the warning signal does not come until tissue damage has been extensive. Often it may not come in carcinoma until the lesion has metastasized. Pain perception is sometimes congenitally absent. There are not many authentic cases in the literature but congenital indifference to pain does exist and up to the present time the exact nature of the abnormally remains unknown. Occasionally disease of the pain-conduction pathway, such as syringomyelia is present, which interferes with this warning signal. Also, pain fibers are sparse in the big solid organs. Often the pain does not occur until the stimulus has reached the capsule of an organ such as the liver. Psychological aberrations influence pain—sometimes to exaggerate it and at other times to disguise it entirely. In older patients, the pain stimulus often is dulled, and we must be particularly cautious in the interpretation of symptoms in some of our older patients for this reason. Iatrogenic factors may be responsible for the absence of the warning signal. In the sympathectomy that formerly was done quite often for hypertension, the afferent visceral fibers accompanying the sympathetics were severed and as a result true visceral pain in that neural segment could not be registered. Anticholinergics in very large doses also dull the effect of a stimulus that might be caused by contraction or dilatation of a viscus. Analgesics, unfortunately, are sometimes administered too soon and in too large doses so that the pain signal is eliminated. So much for the beneficent warning signal aspect of pain.

Let us go to the second aspect that pain is *deleterious* and that it is destructive if it lasts long enough. Many of you know the word pain in a number of languages—peine, French; poena, Latin; pena, Italian; poine, Greek. All of these words signify penalty or punishment, emphasizing the fact that pain is not always a good thing. Definitions of pain usually imply psychic as well as physical distress. The implication of physical punishment is clearer. I hate to quote surgeons, as you know, but in this

instance may I tell you something that René Leriche, that eminent neurosurgeon from Strasbourg, said, "The only pain that is easy to bear is the pain of others." Certainly, any pain at any time may exceed its protective function and become corrosive, exerting a destructive effect on the tissues, and creating secondary symptoms and even secondary disease. The psychiatrist would say it dissolves fortitude and undermines ethics. With this concept of pain in mind I always think of that great figure in American medicine, Silas Weir Mitchell, patrician, historian, one of the earliest psychiatrists, eminent neurologist, physiologist, and clinician. He was a graduate of the Jefferson Medical College in Philadelphia, and the author of books related to Colonial America (but Philadelphia, not Boston); some of you may have read *Hugh Wynne, Free Quaker; The Red City; or Constance Trescot*. He probably was not an Oliver Wendell Holmes, but he also wrote poems. I will read a very brief poem. It has very little to do with pain, but I would like to illustrate to you that everything that is beautiful does not originate in Boston. Silas Weir Mitchell wrote this poem in anticipation of his demise.

"I know the night is near at hand,  
The mists lie low on hill and bay,  
The autumn sheaves are dewless, dry,  
But I have had the day.  
Yes, I have had, dear Lord, the day.  
When at Thy call I have the night,  
Brief be the twilight as I pass  
From light to dark, from dark to light."

That is a beautiful verse, and it illustrates the type of mind this man had. I am drawing upon him a good deal because I think he has added more to our knowledge of pain than any other physician. He was in charge of Turner's Lane Hospital, in Philadelphia, a large hospital created during the "war between the states" for the study of neurological injuries and particularly peripheral gunshot injuries. As a result of the study he made, he wrote two monographs, one on gunshot wounds and nerve injuries in 1864 and the other (1872) on injuries of nerves, and their consequences. Any student of pain who has not read the latter monograph should do so, because very little has been added to the descriptions of pain syndromes due to nerve injuries since his careful study. He was probably one of the first to describe clearly in the English language ascending neuritis, reflex paralysis, and phantom limb pain. More importantly, he probably was the first to describe causalgia,



which he called erythromelalgia and which is known as Mitchell's disease—that rare vasomotor neurosis with a burning, throbbing pain and a stretched, red, shiny skin, characterized soon by secondary tissue damage and secondary pains over a wide area, seriously disrupting the function of the central nervous system. Causalgia is a striking example of the deleterious effect of pain because it actually becomes a disease in itself. Mitchell always emphasized the potentialities for harm to the tissues and to the individual by long-standing pain.

We have some experimental evidence, too, supporting the thesis that pain is deleterious to the body and also to the mind. For instance, pain produced by the head screw that so many experimentalists use may cause quite striking changes in the T waves in patients with coronary artery disease (Gold). Pain, similarly produced, may decrease blood flow through the afferent and efferent arterioles of the glomeruli of the kidney (Wolf). Your own Chester Jones, a good many years ago, reported impairment of renal function in association with peptic ulcer pain. We know that marked elevations in the blood pressure occur in some patients with the occurrence of severe pain. Any number of experiments could be mentioned to indicate that severe pain in itself can produce pronounced physiologic disorders and psychologic aberrations.

#### Evaluation of Significance and Intensity of Pain

In an effort to evaluate the intensity and the significance of pain, four facets should be kept in mind when confronted with the patient with pain. Briefly, they are first, *pain threshold*, namely, the perception of the noxious stimulant; second, the patient's *reaction* to pain, both psychologic and physiologic; third, is this *regional psychogenic* (central) pain; and fourth, is there actually any pain at all—is this *malingerer*?

#### Pain Threshold

Pain threshold denotes the minimal noxious stimulus capable of being perceived. At present, there is no satisfactory method of measuring the pain threshold of the viscera. A number of methods has been used by experimentalists to measure the pain threshold of the skin and integument. The one most commonly used is that designed by Hardy, Wolff, and Goodell, the application of radiant heat to an uninflamed area on the forehead. The intensity of the radiation that barely evokes pain is called the pain threshold.

Obviously this is a measurement of threshold for skin stimulus. This may not be identical with threshold for visceral pain. The clinical appreciation of the pain threshold in the physiologic sense is extremely difficult because it is often almost impossible to differentiate threshold from reactivity of the patient. Side reactions, both physiologic and psychologic, render the clinical appraisal of the pain threshold exceedingly difficult. As a matter of fact, it has not been very clearly stated or established whether the various types of discomfort such as ache, prick, burn, tickle, itch, and touch are dependent upon the nature of the stimulus, differences in the neural apparatus for their perception, or the emotional state of the individual. These pose real problems in any patient who has pain. Bearing in mind the vagaries in the interpretation of threshold versus reactivity, threshold varies from person to person. Some of us have noticed what appears to be a racial variation. In many instances the pure Negro who is not living in America (high threshold) and the Armenian (low threshold) seem to have differences either in threshold or in reactivity or both. Perception of pain in the same person seems to vary from time to time depending upon some factors which I might mention briefly. Pain threshold may be raised, for instance, by interfering with perception, by distraction of various kinds. Noise is one of the factors that has been used. As a matter of fact, audioanalgesia is now being used (white sound, as well as music) in the treatment of labor pains and in dental practice. Not long ago I had occasion to go to a special dentist to whom I was referred by my dentist for root canal work. Throughout the hour I was in the chair he played operettas from a disk and sang while he was working. It was very effective; he had a nice tenor voice, and I went through this procedure without being too upset by it, so there may be something in it. When a stimulus is applied, concentration on something else, such as reading or repeating numbers, has been known to raise the threshold. Hypnosis and analgesics are threshold raising factors. The release of epinephrine may have something to do with raising the threshold.

You are probably more interested in some of the things that might lower the pain threshold (and here we are on somewhat safer grounds). Pain becomes more intense in association with apprehension and anxiety. Again it may be said this is reaction to pain rather than threshold. Perhaps it is but, from the clinician's standpoint, these people seem to appreciate pain to a greater extent when they are anxious

or apprehensive. Again, sitting in the dentist's chair, the burr going down into the tooth, the dentist has already struck a nerve ending which has caused severe pain and you sit there and wonder when is he going to get back to that area again; you tense up and the next time it feels so much worse. This is an example of anticipation lowering pain threshold. Conditioning, which I will discuss later, is important—the so-called conditioned reflex or a “hot neurologic circuit.”

Inflammation is particularly important because it actually has a great deal to do with lowering the pain threshold. A simple experiment may be carried out to illustrate the effect of congestion or inflammation. Stimulating the stoma of a colostomy or ileostomy by pressure, pinch, or the application of faradic current will elicit no response, but if a rubber band is placed around the base and it becomes congested, the patient will experience acute pain when the same stimulus is applied. In some of the recent work done by Lim and others, much emphasis has been placed on vasodilation and the kinins in relation to pain sensation. There are those who feel that the cellular breakdown caused by inflammation liberates lysosomal enzymes that act upon the plasma proteins, liberating peptides like bradykinin, which is a strong vasodilator, and this is said to activate the chemoreceptors. Certainly, regardless of the mechanism responsible, inflammation very definitely lowers the pain threshold.

#### Reaction to Pain

Now a word about reaction to pain because this too is important. Livingston, another keen student of pain said, “Pain is a perception and as such is subject to the influence of associated ideas, apperception, and fears”—a brief way of mentioning the importance of reactivity to pain. In other words, both psychologic and physiologic changes are modified by the feeling state of the patient. It would be fair to say that there is no dependable relation between the extent of a pathologic lesion and the apparent intensity of the pain. Your own Beecher here in Boston, the anesthesiologist, has repeatedly commented on the lack of appreciation of pain by many soldiers with extensive battle wounds. He and others have attributed this to the fact that these soldiers have been taken out of the front lines, hence are released from tension and fear, and that, consequently, their appreciation of pain is lessened. At any rate we can say this, *the intensity of suffering is closely related in many instances to what the pain*

*means to the patient.* By association of ideas, pain may constitute a threat to life or to security based upon previous experiences and knowledge. How often have we heard, “Doctor, I must have a cancer because this is exactly the same sort of pain my mother had with her carcinoma of the stomach,” or “I must have a myocardial infarction or coronary artery disease because my pain is precisely like that my father had with his heart attacks.” We hear these things repeatedly so we know these patients have in their minds the image of something that reminds them of a serious illness and that in itself undoubtedly influences their reactivity. Dana Farnsworth comes from this part of the world too, and he has stressed that the psychological processing of the sensation has as great importance in the appreciation of pain as the intensity of the noxious stimulus. Hence, in therapy the selection of a narcotic agent versus a sedative versus a placebo has tremendous importance. Persons who *react* intensely to their stimulus appear to do much better with psychotherapy, a placebo, or a sedative than they do with a narcotic. I am fearful that many young house officers often prescribe narcotics over the telephone when a simple sedative or a visit to the patient and conversation might have sufficed.

#### Psychogenic Pain in the Pain-Prone Patient

Is this psychogenic regional pain in the absence of a peripheral noxious stimulus? This is not easy to determine. Perhaps I might quote Engle, who has been interested in this type of pain, “Once the psychic organization necessary for pain has evolved, the experience, pain, no longer requires peripheral stimulation to be provoked, just as visual and auditory sensations like hallucinations may occur without sense organ output.” This brings us to some consideration or mention at least of the conditioned reflex. The following serves me in great stead when trying to explain to patients the mechanism of their pain. It is, in brief, a definition of the conditioned reflex (Thomas) that we should memorize: “A nerve circuit that has been frequently activated by a noxious stimulant becomes more responsive to subsequent stimulation. Emotional factors that have been associated previously with the peripheral noxious stimulus may of themselves acquire the ability to act as a stimulus, activating the previously sensitized nerve pathway, thus creating psychogenic pain.” This factor is tremendously important in the mechanism of pain in many patients. It explains many pains that commonly occur in the pain-prone patient.

Psychologic pain does not occur in a homogeneous group in terms of psychiatric nosology. In a number of these patients the symptoms may be catalogued as conversion hysteria, when they are associated with many other conversion symptoms both sensory and motor. The patient with depression is another example. Many of these patients have abdominal pain as a somatic component. Those of you who are interested in pancreatic disease must frequently be compelled to distinguish between a carcinoma of the pancreas and depression. This is not always easy. Sometimes an extensive diagnostic study is required before this can be settled because patients with carcinoma of the pancreas may be depressed, and many persons who are depressed have pain simulating that of carcinoma of the pancreas. The label hypochondriasis has been attached to some of these persons with psychogenic pain. Then there is the schizophrenic with his delusion of pain and the addicted patient during withdrawal with pain so severe it is often confused with the pain associated with acute abdominal disease.

When confronted with pain, the physician must realize that he is dealing with both the neurology and psychology of sensation and he had better be ambidexterous in his interpretation of the patient's response. You may ask how can psychogenic regional pain be differentiated from pain that results from an active visceral noxious stimulant. This is not easy. Many of us now have acquired a moderate amount of experience with epidural block which has been useful. Occasionally it may not be as helpful as hoped, but it is a procedure that I still utilize frequently when I cannot decide, after complete objective studies, whether the patient is experiencing a noxious visceral stimulant. An adequate epidural block ought to make this decision. If the pain is still present after the block, it should be a psychogenic regional pain, not the result of a local peripheral visceral stimulus.

#### The Malingeringer

The fourth factor in the appraisal of pain that is confusing is malingering. There is no pain; the patient is lying. Some malingeringers are very good liars. Is there a reason they wish to be ill? Does it profit the individual? Are they trying to escape responsibility? These persons who are malingering, are they looking for sympathy? Has it become a way of life? This is difficult to settle in every instance but at any rate they are profoundly psychoneurotic, and they probably do not all belong in quite the same nosologic category.

I have deliberately devoted a great deal of time to these basic concepts concerned with the appraisal of pain. This has been purposeful because in my contacts with recent medical graduates, I have sensed a lack of clear understanding of the pain problem in the broad sense that I have tried to present to you in just a few words.

#### Concerning Mechanisms of Abdominal Pain

There is little time to discuss pain mechanisms and perhaps it is just as well in a sense because the precise neural mechanism for visceral pain is still controversial. Indeed, even when a stimulus is applied to the skin the neuroanatomists and the neurophysiologists are not agreed concerning: (1) the manner of action of the stimulus; (2) the nature of the receptor apparatus; (3) the character of the pathway neurons; or (4) the precise registration centers. It is even possible that no neural apparatus is concerned only and specifically with pain. However, it might be fair to say that despite this lack (and apparently supplemental histochemical and electrophysiologic data are necessary before much more information is available) as clinicians it would be wise for each of us to draw up briefly a working formula or hypothesis to explain the mechanisms of the principal types of abdominal pain. This would prove rewarding in terms of expertness in bedside diagnosis.

Anatomically, we assume the presence of: (a) an adequate stimulus, (b) a receptor apparatus sensitive to the stimulus, and (c) an adequate neural conduction pathway transmitting the impulse to the cerebral cortex and referring the sensation to or near the site of the stimulus.

We can agree that impulses coming from the skin and from the mesenteries are carried via the so-called somatic nerve endings, (cerebrospinal nerves) to the posterior root ganglion, thence to the posterior horn; then the second neurons cross over and continue upward to the thalamus and cerebral cortex in some manner. Many neurophysiologists believe that there are a series of short fibers or nerve nets rather than a single pathway in the spinothalamic tract ascending to the thalamus. When a hollow viscus, an abdominal organ, is stimulated, the impulses go over the afferent visceral fibers that accompany the sympathetics, arrive in the posterior root ganglia, then proceed to the posterior horn in close anatomic relation with the somatic neurons, and thence upward in the same manner. I am going over



this briefly to emphasize how neighborly these nerves are—those coming from the viscera and those coming from the skin, the mesenteries, and the peritoneum. Cerebrospinal nerves and the afferent visceral neurons lie together and their posterior root ganglia are next to each other; they are close together in the posterior horn, which explains some of the things concerned with referred abdominal pain.

For only a few years we have agreed that there is such a thing as true visceral pain. For instance, until about the turn of the century there were many who claimed that the viscera did not have pain fibers, that all visceral sensation was referred to the surface. Some of you may remember that often quoted experiment performed by William Harvey in 1640 in which he demonstrated before King Charles I the exposed pericardium and heart of the son of Court Montgomery; this young man did not feel touch and pressure when they were applied to the exposed pericardium. This made a great impression upon those who were concerned with pain mechanisms in those days. About a century later, in 1760, the renowned Swiss physiologist, von Haller, did some animal experiments in which he was unable to obtain any response to stimulation of the visceral pericardium, the visceral pleura, or the visceral peritoneum, and he also concluded that there were no nerves for registration of pain in the viscera. Then Lennander, a thinking surgeon, using local anesthesia, found he could cut or pinch the bowel and the patient was not conscious of pain, but if he pulled on the mesentery, the patient cried out with pain. It was assumed that the somatic fibers (cerebrospinal nerves) had to be stimulated for the patient to feel pain. You know about Mackenzie who, in 1893, claimed that the viscera always expressed themselves in the parietes.

We now know that these observations negating the presence of true visceral pain were fallacious. One of the first persons to emphasize the fallacy was, again, René Leriche. While Leriche was operating on a patient under spinal anesthesia for a carcinoma of the sigmoid, he observed a profound contraction in the sigmoid and the patient cried out with pain. The spinal anesthesia was working, the retractors had not bothered the patient, the bowel was not exteriorized, and there was no traction on the mesentery, so Leriche concluded there must be visceral pain fibers—there must be such a thing as true visceral pain. Now we know that the viscera do have fibers capable of carrying pain impulses. Fortunately, however, these fibers are not nearly

as numerous as they are in the skin. Fortunately also, they are not accustomed to the same sort of stimulus that is applied to the skin. The skin-type stimulus, if it is strong enough and is applied to an area that is inflamed, will cause pain just as it would on the skin. We now know, thanks to Sir Arthur Hearst, John Ryle, and Sherrington, that stimuli adequate to cause visceral pain are motor changes in the viscus, that is, contraction and distension of the viscus. The extent of this change is not as important as the rapidity with which it happens from the standpoint of the intensity of the visceral pain. Anoxia and changes in vascularity also can produce visceral pain.

### Major Types of Abdominal Pain

I should like to indicate very briefly the plan I have used for a number of years in the attempt to classify the pain that the patient may feel when a noxious stimulus is applied to an abdominal viscus. I divide pain types into three categories: (1) true visceral pain, (2) referred pain, and (3) the peritoneocutaneous reflex pain (originally described by Morley).

*True Visceral Pain.* With *true visceral pain*, the adequate stimulus is a contraction or dilatation of the hollow viscus, or a change in vascularity. The impulses go over the afferent visceral fibers—the cerebrospinal fibers are not concerned. This type of pain is usually central in its abdominal distribution; it is diffuse; it is protopathic; it may be very severe as it is in myocardial infarction but usually it is not intense—more an ache or burn. Often this type of pain originating in the abdomen is functional, the result of spasm or dilatation (disturbed motility or tonus). It is the first type of pain occurring in obstruction of a hollow viscus; it is the first pain that the patient with acute obstructive appendicitis experiences (if he is awake when it starts). This pain is not over the appendix. The pain occurs in the central part of the abdomen above or below the navel.

*Referred Pain.* It is only when the second pain occurs in obstructive appendicitis that pain over the appendiceal area appears, namely, *referred pain*. The exact mechanism of referred pain is not clearly understood. Ruch has suggested that both the afferent visceral fibers carrying the true visceral pain stimulus and the cerebrospinal fibers may join the same second neuron. The cerebral cortex refers the sensation laterally to areas of the

body surface supplied by the cerebrospinal nerves emanating from the same segment of the cord. Ruch believes that the cerebral cortex interprets the visceral stimuli as coming from cutaneous pain neurons, the latter being more numerous and better conditioned than visceral pain fibers. Certainly the second type of pain that is commonly experienced when a noxious stimulus is applied to the abdomen is referred pain if inflammation has taken place. With the appendix, for instance, the dilatation of the appendix was enough to produce the central visceral pain, but when inflammation, congestion, and vascular changes occur, the cord area is bombarded with impulses. Furthermore, inflammation lowers the pain threshold. These factors are responsible for reference of pain to the integumental area in the segmental zone concerned. Referred pain is commonly the result of inflammation of the part (rarely of functional origin) associated in some instances with skin hyperalgesia, muscle guarding, and local tenderness. With true visceral pain these side effects are usually not present. Referred pain is much more intense than is true visceral pain. It is sharp, epicritic, severe, and lateral in its distribution in most instances.

*Peritoneocutaneous Reflex Pain.* If we continue to utilize appendicitis for illustration, the appendix now has ruptured. Now the parietal peritoneum is involved; now the cerebrospinal nerve endings are being bombarded. Morley's description of the phrenic reference is responsible for the first description of this third type of abdominal pain. By stimulating the central portion of the abdominal diaphragm, pain was referred through the cerebrospinal neurons (3, 4, and 5). The stimulation of any portion of the parietal peritoneum will cause pain to be referred to the overlying integument through direct activation of segmental cerebrospinal nerve pathways. This reflex is entirely by way of somatic nerve endings. The afferent visceral fibers are not concerned. This most intense pain is characteristic of peritonitis. Perhaps the pain that occurs in many cases of pancreatitis even when the superficial parietal peritoneum is not involved is more intense because of the presence of so many cerebrospinal nerve endings in association with the posterior aspect of the pancreas. Perhaps that is the reason sympathectomy does not relieve pain in most instances of pancreatitis. This third type of abdominal pain is that experienced in the "acute surgical abdomen." It is associated with spasm and rigidity of the abdominal wall and with intestinal paresis, the "silent abdomen."

If a noxious stimulus is applied to the intra-abdominal area, one or all three of these pain mechanisms may be at work. The first, true visceral pain, will surely be present. If inflammation does not set in, that may be the end of it; it may have been merely the result of a functional contraction or a spasm. If inflammation does set in and if it is severe enough, the second type, sharp, lateral, referred pain, will be experienced. If the inflammation involves the parietal peritoneum, the third type, severe, intense pain, will occur (peritoneocutaneous reflex). For example if the appendix which ruptures is attached to a high cecum in the upper right abdominal quadrant, the peritoneocutaneous reflex pain will be in that location, not over the appendix. Under these circumstances in acute obstructive appendicitis, the first pain will be periumbilical (true visceral pain), the second in the lower right quadrant (referred pain), and the third (after rupture) will be in the upper right quadrant (peritoneocutaneous reflex). In the absence of a careful history detailing the occurrence of the first two pain types, an erroneous diagnosis of ruptured gallbladder or duodenal ulcer may be made.

In concluding, I should like to stress again the need of the diagnostician for the adoption of some sort of *tentative formula* to explain *pain mechanisms*. I have outlined the plan I use, fully realizing that there are many facets not perfectly understood. I have stressed the broad concept of the *pain experience* or syndrome and have pointed out the significance of *pain threshold*, and of *patient reactivity* (both physiologic and psychologic), and of *psychologic pain* in any attempt at appraisal of the *significance of pain*. Nothing less than the *whole person* participates in the pain experience. I hope that I have sufficiently emphasized the *deleterious effects* of many pains on the organism and the importance of bringing about prompt, lasting relief.

My good friend, the late John Ryle, who was regius professor of medicine at Cambridge, was one of England's fine clinicians. I am very fond of quoting him because he wrote so beautifully; one of his favorite theses was stressing the value of perceptive clinical analysis. He said in one of his lectures, "There is no study more likely to furnish interests and rewards in the practice of medicine than a concerted study of visceral or other pains. The results will come slowly but they need not discourage. No apparatus is required, no laboratory experience

is necessary, yet a valuable piece of clinical research can be pursued."

Finally, I hope this hour has not been too painful an experience for you.

I am happy to have had this opportunity to pay

tribute to the memory of Frank Lahey, whose life was devoted to the alleviation of pain.

(The references may be seen in the original article.)

## TREATMENT OF CREEPING ERUPTION WITH TOPICAL THIABENDAZOLE

*CAPT Charles M. Davis, MC USAF and CAPT Ronald M. Israel,  
MC USAF, Miami, Fla., Arch Derm 97(3):325-326, March 1968.*

Fifteen patients with creeping eruption were treated topically with an aqueous, commercially available 10 percent thiabendazole suspension. Symptomatic relief of pruritus was noted within three days and 160 of 164 tracts cleared in one week.

Oral thiabendazole has been shown to shorten the course of creeping eruption in man; however, the problem of gastrointestinal side effects indicated the desirability of an effective topical preparation. A 2 percent solution of thiabendazole in dimethyl sulfoxide was effective but difficulties with the dimethyl sulfoxide limited its use to research purposes. The newly available oral suspension applied topically was evaluated in this study.

### Materials and Methods

A 10 percent aqueous flavored suspension of thiabendazole intended for oral use was applied topically to 15 patients with creeping eruption. The patients were instructed to apply the medication sparingly with their fingertips to all lesions four times a day. No other treatment was used except ordinary bathing. No occlusive or nonocclusive dressings were used. All patients were examined by the same observer within one week of initiation of therapy. Activity of the lesions was judged by the degree of pruritus, presence of erythema, elevation, vesiculation, and extension of the tracts.

### Results

The 15 patients had a total of 164 tracts with the average number per patient being 10.9, with a range

of 1 to 50 lesions. Seven patients had five or less lesions. The average pretreatment duration of the lesions was ten days, with a range of 1 to 30 days. The duration of the infestation was essentially the same in those patients with five or less lesions when compared to those with more than five.

In all patients, pruritus was markedly decreased by the third day of treatment. On the seventh day of treatment, 160 of 164 tracts were inactive, two were still active, and two patients with one active tract each were lost to follow-up. Six of the 15 patients were examined daily and by the third day, 24 of their total 34 tracts were inactive.

The oral thiabendazole suspension used topically cleared 98 percent of the tracts in one week without the local or systemic side effects noted with earlier treatment methods. Two patients complained of stinging when the medication was applied to eroded areas, but this was not severe enough to stop treatment. No other adverse reactions were noted.

### Comment

Previous studies have shown that without treatment 33 percent of lesions clear by one week and 55 percent clear at the end of two weeks. With oral thiabendazole, 59 percent cleared at one week and 92 percent cleared by two weeks. With 2 percent thiabendazole in dimethyl sulfoxide, 65 percent cleared in one week and 93 percent cleared in two weeks. Recently, the same suspension, as in the present study, has been shown to be effective topically when combined with a steroid cream and covered with an occlusive plastic film. We found that the topical thiabendazole suspension alone was highly effective.

The thiabendazole used in this study was supplied as Mintezol suspension (100 mg/cc) through Morton Goldweber of Merck, Sharp & Dohme.

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The views expressed herein are those of the authors and do not necessarily reflect the view of the Air University, the US Air Force, or the Department of Defense.

Reprint requests to PO Box 875, Miami, Fla. 33152 (Dr. Davis).



Generic and Trade Names of Drug  
Thiabendazole—*Mintezol*.

(The omitted figures and references may be seen in the original article.)

## ASSOCIATION OF THYROID CARCINOMA WITH GARDNER'S SYNDROME IN SIBLINGS\*

Mortimer R. Camiel, MD, Joseph E. Mulé, MD, Leslie L. Alexander, MD, and  
David L. Benninghoff, MD, *New Eng J Med* 278(19):1056-1058, May 9, 1968.

We are documenting the records of two sisters with Gardner's syndrome each of whom also had thyroid carcinoma. In view of the familial setting of their major illness, Gardner's syndrome, and its usual association with other tumors, the presence of thyroid carcinoma is probably meaningful.

The most compelling aspect of Gardner's syndrome is familial polyposis of the large intestine, with a predisposition to colorectal cancer in early adulthood. Gardner and his colleagues described this condition with osteomas, fibromas and epidermal cysts and believed that the syndrome represents a disturbance in a single dominant gene. Newly reported cases, and the continuing investigation of known families with the disease, have lead to an increasing list of stigmas, which are usually manifested by some type of excessive cell proliferation, in the form of either a tumor or some type of unusual tissue growth, often mesenchymal in origin.

The presence of thyroid cancer in two sisters with Gardner's syndrome suggests that this may be a heretofore unrecognized sign of the same syndrome or one closely allied to it. Some corroboration of the relation was obtained from a report by Crail of a young adult with colorectal polyposis with adenocarcinoma in at least one of the polyps, thyroid carcinoma and a medulloblastoma, occurring synchronously.

### Case Reports

Case 1. A subtotal thyroidectomy, done when the patient was 19 years old, revealed alveolar and papillary carcinoma. Exposure to ionizing radiation was denied. At the age of 28, she was found to have the full-blown form of Gardner's syndrome. Many

colorectal polyps were present for which a total colectomy was performed. In addition to the thyroid carcinoma, the following signs of Gardner's listed in the order in which they were observed: pigmented nevus; familial colorectal polyposis (her grandfather had died of sigmoid carcinoma, her father of colorectal polyposis with sigmoid carcinoma, in addition to a brain tumor, of type undetermined, and her sister (Case 2) of colorectal polyposis with sigmoid carcinoma); epidermal inclusion cyst; epidermal inclusion cyst with dyskeratosis and basal-cell hyperplasia; osteoma; unerupted and supernumerary teeth; desmoids; and massive mesenteric fibromatosis.

Case 2. A thyroidectomy on the sister of Case 1 done at the age of 20 years revealed papillary adenocarcinoma in both lobes. Nine years later she died of unresectable sigmoid carcinoma with many colorectal polyps and metastases to the mesentery and liver. In addition to the thyroid carcinoma the signs of Gardner's syndrome, listed in the order in which they were found: sebaceous cysts; lipoma of the rectus sheath; and familial colorectal polyposis with carcinoma of the sigmoid with metastases.

### Discussion

It is unlikely that the appearance of thyroid carcinoma in the setting of Gardner's syndrome is a coincidence. Its occurrence in siblings reinforces the likelihood of a meaningful association. Crail also documented a patient with thyroid carcinoma, colorectal polyposis, at least one polyp of which was malignant, and a medulloblastoma. The presence of medulloblastoma with familial polyposis of the large intestine has also been described by Turcot et al.

The signs of the syndrome are mainly characterized by some type of excessive cell proliferation, in the form of either a tumor or unusual tissue growth. It might be anticipated that if a new sign were recog-

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nized, it would be manifested by an excessive growth such as a thyroid carcinoma. Thus, the association of thyroid carcinoma with Gardner's syndrome reinforces the impression that the basic disturbance in the syndrome is one of excessive cell proliferation. Although most of the proliferative abnormalities described with this complex are of mesenchymal origin, the thyroid tumors do not have this origin, suggesting a wider potentiality for the defect.

Of significance is the occurrence of thyroid carcinoma in genetic anomalies other than Gardner's syndrome. Recently, attention has been called to

familial medullary carcinoma of the thyroid gland and its association with familial pheochromocytoma, a syndromal spectrum that may also include parathyroid tumors, neurofibromas, diabetes mellitus and other malignant processes. Evidence suggests that the association is genetic. These examples of genetic influence on tumor formation, including thyroid carcinoma, constitute an additional reason for accepting a genetic influence in the association of thyroid cancer with Gardner's syndrome.

(The figures and references may be seen in the original article.)

## MEDICAL ABSTRACTS

### THE PATHOGENESIS OF CONGENITAL CARDIOVASCULAR ANOMALIES

*Benjamin T. Jackson, MD, New Eng J Med*  
279(1):25-29, July 4, 1968 and  
279(2):80-89, July 11, 1968.

Most congenital cardiovascular anomalies have their genesis early in gestation while the individual organs or organ systems are being formed within the embryo. A number of such anomalies are clearly of genetic origin, resulting from either familial inheritance or chromosomal aberrations. Specific environmental influences are of primary significance as the causative factors in an additional number. For the majority of cases of congenital heart disease, however, no clear-cut etiologic basis has been established. A number of authors have speculated that a large percentage of congenital cardiovascular anomalies are the result of varied environmental factors acting in persons with genetic tendencies to the occurrence of errors in organ development. This discussion considers, in order, genetic factors in the etiology of human congenital heart disease, environmental influences in human disease and in experimental teratology and embryologic bases for congenital cardiovascular anomalies.

### HISTOPATHOLOGIC BASIS FOR OCULAR MANIFESTATIONS OF CONGENITAL RUBELLA SYNDROME

*Lornez E. Zimmerman, MD, Amer J Ophthal*  
65(6):837-862, June 1968.

For 20 years following the first publications by Gregg, Swan, and their Australian colleagues, no

significant advances were made toward establishing the pathogenesis of malformations resulting from congenital rubella infection. Recovery of the virus and the development of microbiologic methods for detection of rubella infection in asymptomatic subjects and in newborn babies, followed almost immediately by the country's first massive epidemics of the disease in many years, permitted the acquisition of an amazing amount of information and tremendous advances in our knowledge of the pathologic anatomy and pathogenesis of ocular changes caused by maternal rubella.

Now it is firmly established that the ocular malformations observed in rubella babies are the result of actual infection of the affected tissues of the eye, and that this infection may persist for months after birth. The infection characteristically is accompanied by a low-grade uveitis that previously had not been recognized as a typical clinical feature of congenital rubella.

Microscopic examination of the eye has established a number of histopathologic characteristics that should prove useful in the differential diagnosis of congenital cataracts and glaucoma caused by rubella from similar malformations caused by other factors.

Application of general principles that have been elucidated concerning the effects of the rubella virus on cell growth and function to the teratogenic effect of maternal rubella has largely accounted for many of the mysterious aspects of Gregg's syndrome, but there still remain certain problems for future research to answer. The development of the congenital rubella syndrome in laboratory animals should provide a welcome substitute for the serendipitous

accumulation of knowledge that has characterized advances of the past few years.

### THE CRUSH SYNDROME

*R. Stuart Weeks, MD, Surg Gynec Obstet  
127(2):369-375, Aug 1968.*

The crush Syndrome is a significant clinical entity and worthy of consideration at this time. The salient clinical features consist of the obvious marked local trauma, plus the renal pathologic factors and pathogenesis thereof. Treatment consists of controlling of the initial period of shock, the prevention and treatment of infection, and the prevention and treatment of acute renal failure. There are various clinical and experimental methods of the treatment, of which hemodialysis is considered by far the most effective. Mortality and morbidity rates can be significantly reduced in these patients by the application of the described principles.

### DIFFERENTIAL DIAGNOSIS OF CERVICOFACIAL SWELLINGS

*Karl W. Knewitz, DDS, et al, Oral Surg  
25(1):43-48, Jan 1968.*

The diagnosis of a cervicofacial swelling depends on a thorough and adequate history, on a complete examination of the region, and sometimes on a thorough physical examination. Accurate diagnosis is especially important if the lesion persists for any length of time. The various most common cervicofacial lesions that present clinically as swellings have been reviewed in order to facilitate the differential diagnosis of these lesions. The fact that many cervicofacial swellings may be malignant is emphasized, as is the idea that biopsy should be performed only after a careful search for a possible site of the primary cancer.

### INTERATRIAL SEPTAL DEFECT AND PERICARDIAL DISEASE

*Hanjoerg Just, MD, and Thomas W. Mattingly, MD,  
Amer Heart J 76(2):157-167, Aug 1968.*

Four patients of the authors' observation and 63 cases from the literature were reviewed, illustrating the association of IASD and pericardial effusion, adhesion, or constriction. In three of the four patients, pericardial disease had assumed dimensions of clinical importance or intensified progressive cardiac decompensation. One patient was of particular interest because of unusual persistence of a pericardial friction rub which has been present for nearly five years.

Pericardial disease appears to be relatively common in IASD, as has occasionally been indicated in the literature, and it is probably more frequent than chance relationship could account for.

The authors have suggested that right atrial enlargement and chronic elevation of intra-atrial pressure may play an important, yet ill-defined role in the genesis of pericardial effusion.

Recurrent pulmonary infections, common in conditions with augmented pulmonary blood flow, and rheumatic heart disease provide opportunity for pericarditis to develop. This may be an important factor.

Chronic heart disease, especially mitral and tricuspid incompetence or stenosis, was frequently seen in the cases reviewed; this may relate to the supposed mechanisms linking IASD and pericardial disease.

The condition may be of considerable clinical importance and its recognition is essential for successful management and well-planned surgical intervention.



# DENTAL SECTION

## TETRACYCLINE AND DENTAL PLAQUE FORMATION: EFFECT OF LOW SYSTEMIC DOSES

LCDR Edmund R. Moyes, DC USN, and  
LCDR Milton C. Clegg, DC USN.

The purpose of this study was to evaluate the effects of long-term, low-dosage systemic (oral) tetracycline therapy on dental plaque formation. An experimental group of 11 individuals (aged 14 to 20 years) who had received 250 to 500 mg tetracycline pills daily for at least 6 months and were continuing on the same dose was compared with a control group of 10 individuals who received no antibiotics. At the initial appointment, all teeth were stained with basic fuchsin and the extent of dental plaque was scored by the Naval Plaque Index (NPI)\*. After thorough prophylaxis, the teeth were stained again to ensure that all plaque had been removed. Subjects were instructed not to change their oral hygiene habits. Staining and scoring were repeated 2 weeks after prophylaxis. Initial NPI scores revealed no differences between experimental and control groups. At the end of the test period there appeared to be less plaque on the teeth of those receiving tetracycline than on the controls, but NPI scores revealed no significant differences. It was concluded that the NPI is not sensitive enough to reveal quantitative differences in plaque formation and that a more sensitive method of measuring plaque should be employed for accurate evaluation of the effects of long-term, low-dosage tetracycline therapy on plaque formation.

(Abstract by Research Work Unit: MR005.19—6052 by LCDR E. R. Moyes, DC USN, and LCDR M. C. Clegg, DC USN.)

## ORAL CYTOLOGY

*Joint Position Statement, JAMA*  
205:523, Aug 12, 1968.

A professional group with particular interest in diagnosis of oral cancer recently met in Chicago to establish criteria for reproducibility of cytologic patterns of oral diseases. During intense two-day deliberations, the following conclusions to oral cytology became apparent:

*Oral Cytology Has Been Shown To Be An Accurate Diagnostic Adjunct That Can Be Of Significant Value For The Early Detection Of Oral Cancer When Used In An Oral Care Program Which Includes A Thorough Oral Examination, Other Appropriate Diagnostic Procedures, And Patient Follow-Up.*

The following points should be observed in all instances:

1. Since most early oral cancers appear innocuous, the trivial appearance of an abnormal area should not cause one to hesitate to use cytology. A positive smear should be followed by a biopsy. An inconclusive or suspicious smear should lead to careful reevaluation of the lesion.

2. It is necessary to select a laboratory in which the personnel have competence in oral cytology.

3. The cytologic material must be adequate, promptly transferred to a slide, fixed immediately, and properly identified. For guidance, consult the expert in the laboratory.

4. Cytology is not a substitute for biopsy. Lesions clinically suspicious of cancer should be biopsied.

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## PERSONNEL AND PROFESSIONAL NOTES

### JOINT ARMED FORCES DENTAL EXHIBIT

The premier showing of the exhibit entitled, "Preventive Periodontics," is scheduled for the scientific

The opinions and assertions contained herein are those of the authors and are not to be construed as reflecting the views of the Navy Department or the naval service at large.

\* The Naval Plaque Index has been designed to reflect the oral hygiene status of a patient and to focus attention on the importance of bacterial plaque as an etiogenic factor in periodontal disease. It is determined by numerical scoring of plaque on selected teeth in designated areas.

program of the 109th Annual Session of the American Dental Association in Miami Beach, Florida, 26-31 October 1968.

The exhibit will visualize the following listed factors relative to Periodontal Disease:

- Prevalence of Periodontal Disease
- Professional Responsibility
- Etiology of Periodontal Disease
- Prevention of Periodontal Disease

### Research and Development Use of the Phase Contrast Microscope with Dental Plaque

Presentation of this subject matter will be made through color transparencies, a continuous running horizontal film strip, a continuous color motion picture with individual audio devices and various art illustrations.

Individual participation and demonstrations will be available with the use of the phase contrast microscope.

The exhibit is a joint effort by the Departments of the Army, Navy, and Air Force with Chairmanship by the U.S. Naval Dental Corps. The exhibit

is designed and produced by the Exhibit Division of the Armed Forces Institute of Pathology.

### NAVAL DENTAL RESERVE OFFICERS' MILITARY SEMINAR

The Annual Naval Dental Reserve Officers' Military Seminar was held on *Tuesday*, 29 October 1968, at 1700 in the Jade Room of the Fountainbleau Hotel, Miami Beach, Florida. This seminar is held in conjunction with the American Dental Association Convention and one retirement point has been authorized by the Chief of Naval Personnel. *The officers in attendance were monitored.* A reception was held following the seminar to which all Naval Dental Officers were invited to attend.

## NURSE CORPS SECTION

### FUTURE NAVY NURSING LEADERS MEET AT BETHESDA

Thirty-five newly selected Navy Nurse Corps Commanders attended a Nursing Administration Conference at the Naval Medical School, National Naval Medical Center, Bethesda, Maryland during the week of 9 September through 13 September 1968. They represented fifteen different naval activities.

The program was sponsored by the Bureau of Medicine and Surgery and was under the direction of Commander Katherine Wilson, NC USN, and Lieutenant Commander Angeline G. Liakos, NC USN.

The conference is designed to aid the new commanders to assume their added duties and responsibilities. As the individual advances in rank and is assigned administrative responsibilities in the higher echelons she becomes more involved in the military, civilian and professional communities in carrying out her functions.

As an administrator her view of nursing extends into the economic, social, political, as well as professional implications of providing nursing care for the sick and injured.

The papers presented included a presentation by Miss Evelyn Atkinson of the Office of Civilian Manpower Management, Washington, D.C. on Civilian Personnel Management.

Commander Dolores Troskoski, NC USN, Nurse Corps Liaison at the Bureau of Naval Personnel re-

viewed Fitness Reports and conducted a workshop in performance evaluation and writing of reports.

The Nursing Research Programs were presented by Commander Ouida C. Upchurch, who described investigations being conducted in the development and utilization of the ward manager.

Captain Veronica M. Bulshefski, Director, Navy Nurse Corps and other members of the Nursing Division met with the group to acquaint them with the functions of the Division in the areas of education, personnel action, planning and accounting, and over all administration of the Nurse Corps.

Senior Nurse Corps officers, after a period of orientation, are assigned to naval hospitals in the United States and overseas in nursing service administration positions.

The following Nurse Corps officers attended: Betty J. Alexander, Barbara E. Bernstein, Martha L. Boring, Ruby M. Brooks, Mary C. Burch, Janice M. Burcham, Margaret C. Donoghue, Maxine V. Easter, Rachel A. Fine, Anna L. Fogarty, Helen I. Furmanchik, Antoinette Garavaglia, Ruth E. Halverson, Katherine A. Howard, Louise F. Jakshe, Imogene L. Johnson, Eva D. Jones, Ann R. Kubicz, Harriet M. Lanaghan, Rae M. Leff, Althea A. Livirrie, Eileen J. McCarthy, Mary R. Morry, Elizabeth M. Pfeffer, Edith A. Prencipe, Theresa M. Proto, May L. Reid, Libia G. Robinson, Harriet R. Ryan, Helen Roller, Virginia M. Seledyn, Claire M. Shea, Miriam C. Sherman, Harriet A. Simmons, and Irene Wujcik.

# RESEARCH SECTION

## LIST OF RECENT PUBLICATIONS FROM RESEARCH LABORATORIES

The following papers have been completed by research activities under the direction of the Bureau of Medicine and Surgery.

### *Naval Aerospace Medical Institute:*

"Influence of Contact Cues on the Perception of the Oculogravic Illusion," by B. Clark and Ashton Graybiel. *Acta Otolaryng*, Stockholm, Vol. 65, 1968.

"Psychiatric Attitudes of Young Physicians: Implications for Teaching," by G. J. Tucker and R. F. Reinhardt. *Amer J Psychiat* 124(7), January 1968.

"Screening of Squirrel Monkeys (*Saimiri sciureus*) for Vestibular Function Studies," by Makoto Igarashi, Ashton Graybiel, and F. R. Deane. NAMI-NASA Joint Report 1042, May 1968.

"Behavioral Responses of Unrestrained Normal Labyrinthectomized Squirrel Monkeys to Repeated Zero-Gravity Parabolic Flights," by John S. Thack, Jr., and Ashton Graybiel. *Aerospace Medicine* 39, July 1968.

"College Performance as a Predictor of the Flight Training Success of NROTC Students," by P. M. Curran and Rosalie K. Ambler. *Aerospace Medicine* 39(7), July 1968.

"Response Suppression Produced by Vestibular Stimulation in the Rat," by David C. Riccio and John S. Thack, Jr. *J Exp Anal Behav* 11, July 1968.

"Vestibular Mechanisms in Human Behavior," by Ashton Graybiel. *Ann Otol* 77(4), August 1968.

### *Naval Medical Field Research Laboratory:*

"Cryotherapy in the Treatment of Snake Envenomation," by Kenneth A. Gill, Jr., NMFRL Report Vol. XVIII, No. 9, July 1968.

"Pitted Keratolysis," K. A. Gill, Jr., and L. J. Buckels. *Arch Derm* 98, July 1968.

"Serum Uric Acid Levels and Leadership in the Marine Corps," by Philip J. Rasch, James S. Bird, Jefferson W. Hamby, and Hoy J. Burns,

Jr. NMFRL Report Vol. XVIII, No. 10, July 1968.

"Nongonococcal Urethritis Associated with T Strains of *Mycoplasma*," by Maruice C. Shepard. NMFRL Report: Vol. XVIII, No. 15, September 1968.

### *Naval Medical Research Institute:*

"Coccidian Parasites of the California Banded King Snake, *Lampropeltis getulus californiae*," by P.F.D. Van Peenen and T. L. Birdwell. *Parasitology* 58, 1968.

"A Guide to the Fruit Bats of South Vietnam," by P.F.D. Van Peenen. *The Formosan Science* 22(2), 1968.

"Primaquine-Induced Changes in Morphology of Exoerythrocytic Stages of Malaria," by R. L. Beaudoin and M. Aikawa. *Science* 160, June 14, 1968.

"Receptive Field Organization of the S-Potential," by Alan L. Norton, Henk Spekrijse, M. L. Wolbarsht, and H. O. Wagner. *Science* 160, May 31, 1968.

### *Naval Medical Research Unit No. 4:*

"Mass Enteric Live Adenovirus Vaccination During Epidemic ARD," by R. O. Peckinpugh, W. E. Pierce, M. J. Rosenbaum, E. A. Edwards, and G. G. Jackson. *JAMA* 205, July 1, 1968.

### *Naval Radiological Defense Laboratory:*

"Studies on the Radiosensitive Phase of the Antibody Response: III. Recovery and the Secondary Response," by J. F. Pribnow and M. S. Silverman. NRDL Report USNRDL-TR-68-69, June 12, 1968.

### *Naval Submarine Medical Center:*

"Subject Acceptance of Stannous Fluoride Treatment," by W. R. Shiller and F. P. Scola. NSMC Memorandum Report No. 68-9, May 14, 1968.

"Personal Habits and Diet in Relation to Periodontal Health and Oral Hygiene Status in Submarines," by A. D. Kropp and W. R. Shiller. NSMC Report No. 528, May 24, 1968.



# PREVENTIVE MEDICINE SECTION

## THE RALPH T. GOERNER SCHOLASTIC AWARD

The Ralph T. Goerner Scholastic Award is given in recognition of outstanding achievement. The member of each graduating class of the Preventive Medicine Technician Course who maintains the highest grade point average during the entire course will be presented this award. The award will consist of a Fifty Dollar U.S. Government Savings Bond and appropriate certificate.

The Ralph T. Goerner Scholastic Award is given in memory of LCDR Ralph T. Goerner, Jr., MSC USN. Mr. Goerner entered the Navy Hospital Corps on 4 July 1941 and progressed through the grades of Petty Officer, Warrant and CWO-4. He was selected for the rank of Lieutenant, MSC, in 1962 and Lieutenant Commander in 1965. He was a Fellow of the American Public Health Association, and a member of the National Association of Sanitarians. Mr. Goerner was Head of the Sanitation Section, Public Health Practices, Preventive Medicine Division of the Bureau of Medicine and Surgery, Department of the Navy, from 1962 to 1966. During this time he accomplished significant strides for the professional advancement of sanitation personnel in the Hospital Corps and Medical Service Corps. His personal concern for the Environmental Sanitation Officers and Preventive Medicine Technicians was demonstrated by his numerous friends and excellent working relationships.

Establishment of the Environmental Sanitation Officer and Environmental Health Officer as career professions for Medical Service Corps officers was one of LCDR Goerner's major contributions. His liaison with Federal, State and local health agencies resulted in inestimable admiration for the Navy's Preventive Medicine program.

Mr. Goerner was equally proud of the Navy Hospital Corps and the Medical Service Corps. He served in both with distinction.

The scholastic award will be funded by the Ralph T. Goerner Jr., Scholarship Fund. This non-profit fund has been established at the Castro Valley (California) Branch of the Bank of America. CDR Arthur N. King, MSC USN, CDR Robert L'Italien and CWO-3 John V. Reische, USN, serve as Trustees of the fund. Further information regarding this award may be obtained from CDR King or CWO-3 Reische, Preventive Medicine Technicians' Course, Naval Hospital, Oakland, California 94627.

## LIVE MEASLES VIRUS VACCINE BOOSTER INOCULATION FOR MILITARY DEPENDENTS

The Armed Forces Epidemiological Board recommends that live attenuated measles virus vaccine be given as soon as possible to all military dependent children who have previously received only inactivated measles virus vaccine. Parents should be advised of possible local and systemic reactions which may occur, but which are of less risk than the reaction which can follow natural exposure to measles.

Inactivated measles virus vaccine should no longer be used to immunize normal children. Children whose underlying disease or therapy contraindicates use of live virus vaccine should have measles immunoglobulin in the event of exposure to measles; their susceptible siblings and close contacts should receive live measles virus vaccine.

*AFEB Memo to SG, D/A of 19 July 1968, Subj: Live Measles Virus Vaccine Booster Inoculation for Military Dependents Who Have Previously Received Inactivated Measles Virus Vaccine.*

## NAVY RESPONSIBILITIES IN FOREIGN QUARANTINE INSPECTION PROGRAMS

There is presently a great deal of interest in quarantine procedures for ships and aircraft returning from Southeast Asia. New methods of packaging and shipping material, together with the rapid transport system now utilized, have seriously increased the possibility of the unintentional introduction into the United States of human, animal, and plant diseases and pests of medical and economic importance.

The possible importation of rodents and rodent fleas in conex boxes and other containerized cargo is of particular interest. The reason for concern is obvious: plague is endemic in many parts of Southeast Asia. It can be spread rapidly throughout the world unless adequate measures are taken to prevent rodents or fleas from being transported in ships or aircraft.

There are several additional reasons why rodents should be excluded from military transports. Rat droppings on food may contain organisms which cause intestinal diseases. Typhus fever is another known rodent-borne disease. Immense loss to food

stores and cargo may result from rats gnawing or contaminating the materials with body wastes.

Departments and agencies of the United States Government have developed a series of quarantine regulations designed to prevent the introduction and dissemination of human diseases, diseases and pests of plants and animals, and arthropod disease vectors.

Department of the Navy, General Order No. 20 of 12 May 1962 prescribes the responsibility, authority and methods to prevent such spread by ships and aircraft of the U.S. Navy. The Army and Air Force Medical Departments have published the same directive but with different titles. General Order No. 20 specifies that full cooperation will be provided at all times to officials of quarantine agencies. These agencies include the U.S. Department of Agriculture and the U.S. Department of Health, Education and Welfare, Public Health Service.

A letter of 16 May 1967 from the Acting Surgeon General, U.S. Public Health Service to the Department of Defense outlined the need for military services to improve sanitation measures as well as rodent and vector control methods in cargo originating from Vietnam. The assistance of military personnel in quarantine inspection of military traffic was requested as authorized by General Order No. 20. This assistance was necessary because the U.S. Department of Health, Education and Welfare, Public Health Service does not have sufficient quarantine inspectors to handle the ever increasing number of ships and aircraft returning to the United States from Southeast Asia.

The Bureau of Medicine and Surgery was assigned Navy Department responsibilities for coordination and implementation of the Navy quarantine inspection program. Certain naval activities were directed to provide Preventive Medicine Technicians (HM-8432) as members of teams who would conduct the necessary quarantine inspections for naval vessels and aircraft in designated port areas.

At the request of the Armed Forces Pest Control Board, the U.S. Public Health Service in cooperation with the U.S. Department of Agriculture and Disease Vector Control Center staff presented two 2-week "Quarantine Inspection Techniques" courses at the U.S. Navy Disease Vector Control Center, Alameda, California. Twenty-four Navy and 15 Air Force Preventive Medicine Technicians attended these training courses and on successful completion were certified as U.S. Public Health Service Quarantine Rodent Inspectors. The major portion of the courses dealt with rodent quarantine; the final day

and a half was set aside for plant pest quarantine. Additional courses will be held as required. This requirement can only be determined by an indication from Navy team coordinators or Medical Department personnel at port activities who have a need for the training. Either the Bureau of Medicine and Surgery (Code 72) or the Officer-in-Charge, Disease Vector Control Center, Alameda should be notified.

BUMED Instruction 6250.7, Subj "Procurement of deratting or deratting exemption certificates by U.S. naval vessels entering foreign ports" of 12 March 1959, gives information regarding the procedure by which naval medical officers may be designated as Public Health Service officers with authority to issue deratting exemption certificates for naval ships. Medical officers designated by the appropriate naval command should make application by letter to the Chief, Foreign Quarantine Program, U.S. Public Health Service, National Communicable Disease Center, Atlanta, Georgia 30333 for the authorization. The address of the Foreign Quarantine Program is a change from the Washington, D.C. address listed in the BUMED instruction. All requests should be forwarded via the Bureau of Medicine and Surgery. Requests have frequently been sent directly to the Foreign Quarantine Program bypassing the Bureau of Medicine and Surgery. This causes an unnecessary delay in getting approval back to the requesting activity.

Each officer designated as a Public Health Service Officer will receive a seal of that Service. The seal is used only in executing deratting or deratting exemption certificates and should be securely locked up when not in actual use.

Reassignment and transfer or release from active duty of the designated officer invalidates his authority to issue certificates. The command to which the officer was attached should appoint a replacement and send a request for transfer of the seal and certification authority to the Chief, Foreign Quarantine Program via the Chief, Bureau of Medicine and Surgery.

The authority to issue deratting exemption certificates will only be given to medical officers when there is present in the command a trained certified Navy Rodent Inspector. When an inspector is no longer assigned to the command, the authority to issue certificates will be rescinded and the seal should be returned to the Chief, Foreign Quarantine Program via the Bureau of Medicine and Surgery.—  
Vector Control Sec, PrevMedDiv, BuMed.

## NATURE AND EXTENT OF PENICILLIN SIDE-REACTIONS, WITH PARTICULAR REFERENCE TO FATALITIES FROM ANAPHYLACTIC SHOCK

O. Idsoe, T. Guthe, R. R. Wilcox, and A. L. DeWick,  
*Bull WHO* 38:159-188, 1968.

Modern penicillin preparations are generally regarded as non-toxic to man and to most animals. Drug reactions are essentially limited to allergic reactions. These are assumed to be the result of antigen-antibody or antigen- "sensitized cell" interactions and are classified as follows:

1. *Sudden or "immediate" reactions and "accelerated" reactions, including anaphylactic reactions.* Antibodies are assumed to be present as the result of previous exposure to penicillin. Reactions occur within seconds or up to an hour after penicillin administration with symptomatology varying from palpitations, vertigo, and dizziness to severe vasomotor collapse.

2. *Late allergic reactions.* With these there may have been no previous exposure to penicillin, and the reaction occurs only after some days (usually 5-14) after the commencement of a series of antibodies have been formed. Types of reactions included in this group are numerous cutaneous manifestations, and serum-sickness-like reactions.

3. *Contact dermatitis.* This results from local application of, or exposure to, penicillin. It is seldom accompanied by allergy to penicillin of the immediate type, although systemic sensitization may result.

4. *Other rare, possibly allergic, or possibly toxic types of reactions.* These include acute psychotic syndromes, pachymeningitis, gangrene and intestinal hemorrhage.

Numerous tests have been devised for detection of penicillin allergy. Two antigens used for detection of skin-sensitizing antibodies are penicilloylpolylysine antigen for the major penicillin antigenic determinants and benzyl penicillin for the minor penicillin antigenic determinants. These are used to detect "sudden" type reactions, as the so-called "late" allergic penicillin reactions are perhaps not all associated with skin sensitizing antibodies. Hemagglutinating antibodies occur with skin-sensitizing antibodies in immediate reactions, but are not useful in testing for allergy because most investigators have found no direct correlation between the amount of hemagglutinating antibodies and the results of skin-testing. Furthermore, it appears that such antibodies

are merely an indication of the immunological response and not the cause of penicillin allergy. Other immunological tests under study include the basophil degranulation test, passive cutaneous anaphylaxis in the albino rat, and a fluorometric assay for histamine release in blood from rabbits passively sensitized with fresh human sera.

A study of 151 patients who died from penicillin anaphylaxis revealed the following:

1. A large number suffered from some other kind of allergy.

2. Almost 70% of the fatal cases had received previous penicillin treatment, and nearly  $\frac{1}{3}$  had had subsequent reactions.

3. The effect of exposure to penicillin presumably accumulates in adult age-groups, which show the highest frequency of fatal anaphylactic reactions.

4. Almost half of the 151 anaphylactic reactions were explosive and appeared immediately after penicillin administration; in another 36%, reactions occurred within 15 minutes.

5. Short-acting penicillin preparations as well as oral preparations, both of which are free from the procaine component, cause fatal anaphylaxis.

Steps to be followed to prevent fatal penicillin reactions include careful history of drug allergy, presence of emergency kit, avoidance of penicillin for external treatment or on mucous membranes, thorough washing and sterilization of all-purpose syringes which have been used in penicillin treatments, retention of patients for 30 minutes after an injection of penicillin, etc.

Treatment of immediate reactions is as follows:

1. Immediately on appearance of signs of reaction, make the patient lie down (head down, feet up).

2. Inject 0.5 to 1.0 ml of adrenaline, subcutaneously, in the upper arm.

3. If immediate response is not obtained, repeat the adrenaline treatment or give an injection of cortisone (25 mg-100 mg hydrocortisone intravenously).

4. In angioneurotic edema, urticaria or conjunctivitis, give antihistamines intramuscularly or intravenously.

5. Where there is coughing, dyspnea, respiratory distress, or substantial discomfort, a slow intravenous injection of 0.25 gm-0.5 gm aminophylline can be used. Artificial respiration has also been successfully used.

Desensitization can be achieved by the use of graded doses, but the procedure is not without con-



siderable danger and should be reserved for patients who are seriously ill and when there is no effective alternative antibiotic.

#### CADMIUM FOOD POISONING—MINNESOTA

*USDHEW PHS NCDC Morb & Mort Wkly Rep*  
17(34):320, Aug 24, 1968.

On 12 June 1968, in St. Louis County, Minnesota, 4 persons experienced nausea, upper abdominal distress, and vomiting within 15–60 minutes after eating an evening meal at a local drive-in restaurant. All recovered within several hours after receiving medical treatment for their symptoms.

Epidemiologic investigation incriminated cole slaw as the likely vehicle of infection because it was the only food eaten by all 4 persons. Inspection of the restaurant facilities disclosed a corroded metal shelf receiving drippings of foods stored above (pickles, celery seed dressing, tartar sauce, and probably catsup). It is postulated that some acid foods reacted with the cadmium plating, forming cadmium salts which dripped onto the cole slaw, and that the cadmium salts did not contaminate the entire jar, but remained concentrated on the surface layer; consequently, only 4 cases of food poisoning occurred. Laboratory examination of the cole slaw revealed the presence of cadmium in a concentration of 6.8 parts per million.

*Editorial Note:* In previous reports of cadmium food poisoning, as little as 10 mg of cadmium has been reported to cause the symptom complex of headache, nausea, salivation, vomiting, diarrhea, and stomach and muscular pains  $\frac{1}{2}$  to 2 hours after ingestion.

#### INSECTICIDE GUIDE REVISED

The 1968 revised edition of Agriculture Handbook 331, *Suggested Guide for the Use of Insecticides to Control Insects Affecting Crops, Livestock, Households, Stored Products, Forests, and Forest Products*, has been released by the U.S. Department of Agriculture.

This handbook was prepared by the Entomology Research and Market Quality Research Divisions, Agricultural Research Service, and the Divisions of Forest Pest Control and Forest Protection Research of the Forest Service. Pesticides uses are based on information obtained by various Federal, State, and other research organizations. All materials listed for use in production of food and feed have scientific-

ally determined and legally enforceable safety levels or other clearance for the uses suggested.

More than 2,000 uses for 91 insecticides are listed for selected crops, livestock, household pests or for specific locations or products. The handbook also discusses the roles played in controlling insects by good management practices, use of resistant crops, and the aid of insects' natural enemies.

Precautions are outlined for safe use of insecticides and for disposal of surplus insecticides and empty containers. Protection of fish, wildlife, and honey bees from possible misuse of pesticides is also discussed.

Copies of the handbook are available for \$1.50 from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402. Zip codes must be included in forwarding and return addresses.—Vector Control Sec, PrevMedDiv, Bu-Med.

#### ELECTRIC CURRENT CAUSES MORE ACCIDENTAL DEATHS

*Statist Bull Metrop Life Insur Co* 49:8–10,  
May 1968.

Accidental deaths due to electric current have been on the increase in the United States in recent years. The 1,071 such deaths reported in 1965, as compared with 989 in 1960, represented the third consecutive year of increase since 1962, when the toll dropped to 849. Over the 1962–65 period, the death rate from these accidents rose from 4.6 to 5.5 per million.

About 90 percent of the fatalities due to electric current occur among males, whose death rate from this cause increases sharply from the early school ages through the young adult years and then declines. In 1965 the highest rate of fatalities due to electric current was experienced by men in the age range from 20 to 34. The lowest rates were recorded at ages under 10 and at ages 65 and over.

Between 1960 and 1965 the accidental death rate due to electric current increased among males as much as 15 percent in the age groups 10–14 and 15–19 years. At ages 45–54 the jump was 12 percent. In sharp contrast, the rate declined by one half at ages 65 and over.

Fatal accidents attributable to electric current begin to increase in late spring and reach a peak in July. More than 2/5 of these fatalities occur from June through August, the months when most of the repair and extension of electric lines is done and

when a generally greater volume of outdoor activity involving exposure to electric current occurs. It is believed also that the risk of electric shock increases during the warm summer days because body resistance is often lowered by perspiration.

A study of death certificates by the Division of Vital Statistics, United States Public Health Service, found that in one year approximately  $\frac{2}{3}$  of all fatal injuries from electric current occurred on the job. More than  $\frac{1}{4}$  of electrical fatalities in the United States in 1965 occurred on home premises.

A review of the 1964-65 death claim records of policyholders of a large insurance company indicates that when the fatality was attributed to electric current in the home the activities at the time of the mishap included: the installation of television and radio antennas; working with electric tools; using defective extension cords; building an electric transmitter; repairing an ungrounded air conditioner; starting a shortcircuited sump pump; touching fallen high tension lines; operating a radio or a heater while taking a bath; and working or playing with exposed wires or light sockets.

Almost  $\frac{1}{4}$  of those killed by electric current accidents during 1965 were injured in industrial places and premises such as light and power plants, factories, and mines and quarries. About  $\frac{1}{10}$  of all electric circuit fatalities were caused by street and highway mishaps, mostly contacts with high tension wires on the part of utility company personnel, construction workers, (particularly crane and hoist operators), and others in allied industries. A relatively small number of the electric current fatalities in street and highway mishaps resulted from contact with fallen power lines or automobiles energized by such lines.

There were some 200 electric current fatalities in such places as forests, military camps, parking places, and piers. These included on the one hand deaths among electric light and power linemen, and on the other, some fatal injuries among boys playing on electric poles or coming in contact with electrical conductors through flying kites and model planes.

About  $\frac{1}{10}$  of all electric current accident fatalities occurred on the farm, mainly in connection with farm production equipment, irrigation pumps and other machinery. Makeshift and other unsafe wiring, as well as lack of caution in moving farm equipment or irrigation pipe near power lines, contributed importantly to this loss of life.

## BACTERIAL DISEASES

*USDHEW PHS CDC Vet Public Health Notes,  
p 3, June 1968.*

In the United States in 1967, 16 states reported 51 cases of human leptospirosis to the National Communicable Disease Center, Atlanta, compared with 72 cases in 1966. California and Hawaii recorded the largest number with 9 each; Louisiana 8 cases and Iowa 7. Twelve states reported 3 or fewer cases.

Surveillance reports were obtained on 43 of these cases. Of the 43 cases, 32 (74%) occurred in males, age was known in 38 of the 43 cases; in females, the 0-9-year age group had the highest incidence with 5 cases. In males, the 10-19- and 50-59-year age group each had 6 cases.

At least 8 serotypes were incriminated. Information on the probable source of infection was available on 27 of the 43 cases. The largest number (14 cases) resulted from contact with dogs, cats, or rodents in the home. Two cases with suspected rodent exposure occurred in military personnel returning from Vietnam. Accidental exposure in the Laboratory accounted for 2 cases. In 3 cases, cattle and swine were incriminated as possible sources of infection.

The Animal Health Division, Agricultural Research Service, U.S. Department of Agriculture, stated that there were 11,424 cases in cattle, 6,519 cases in dogs, 1,680 cases in swine, and 375 cases in horses.

## ISOLATION OF AIRBORNE RABIES VIRUS

*Commonwlth of Va, Dept of Health, Bu of Epid,  
Morb Rep, Aug 3, 1968.*

The Chief, Southwest Rabies Investigation Station, National Communicable Disease Center, Las Cruces, New Mexico, reported on the isolation of rabies virus from Frio Cave, using a mechanical air sampler.

The transmission of rabies by a non-bite route was demonstrated in 1960, when susceptible animals caged in Frio Cave and exposed only to atmosphere became infected with rabies. Animals that have been experimentally infected through cave exposure include red and gray foxes, coyotes, opossums, and ring-tailed cats. Frio Cave is a large multi-chambered cavern, parts of which are used by the Mexican free-tailed bat as a nursery for their young in summer months. Millions of bats, primarily lactating females and sucklings, may be found from June to early August.

In the summers of 1962, 1964 and 1965, attempts to isolate rabies virus from the atmosphere with mechanical air samplers were unsuccessful. Although no virus was isolated, animals exposed simultaneously developed rabies.

In the summer of 1966, attempts were again made to isolate rabies virus from the atmosphere inside the cave. Two types of air samplers were used: the Ace All Glass Impinger (AGI-4) and the Litton

Industries Large Volume Air Sampler, Model L (LVAS-L). Rabies virus was isolated from 4 of 8 samples collected with the LVAS-L. All isolations were made from foxes inoculated with 20-30 ml of sample fluid. No isolations were made from the 5 samples collected with the AGI-4. No attempt was made to quantitate the amount of rabies virus in the air of the Frio Cave.

## KNOW YOUR WORLD

### Did You Know?

That in the winter of 1967-68, a major epidemic of A<sub>2</sub> influenza occurred in the United States?

Forty-six states reported outbreaks of influenza-like illness, with the incidence being much greater in the eastern part of the country. Excess mortality was seen throughout the months of January 1968 for the country as a whole and for 8 of the 9 geographic divisions. Excess mortality appeared 4-5 weeks after the onset of outbreaks.<sup>1</sup>

That tuberculosis costs the American people 1 billion dollars each year?

This includes treatment, control services, compensation payments and economic loss.<sup>2</sup>

That in 1967, paralytic poliomyelitis reported cases in the U.S. reached the lowest point since national reporting began?

"Best available paralytic case count" for 1967 was 41 cases; a significant drop from 102 cases in 1966 and the previously record low of 61 cases in 1965. The decrease from 1966 is mainly attributable to a lower incidence of poliomyelitis in Texas in 1967. In 1966 and 1967, the number of non-Texas cases, 36 and 32, respectively, indicates an unchanged incidence in the remainder of the country. In 1967, there was a regional concentration in 3 southwestern states along the U.S.-Mexican border. Again, most patients were unimmunized infants and preschool-children of lower socioeconomic backgrounds.<sup>3</sup>

That married women, 40-55 years of age, are becoming an increasingly larger proportion of the nation's alcoholic population?

Years ago, the sex ratio was 4½ males: 1 female. Now, women alcoholics have risen to 1½%. Alcoholism among women is a middle-class phenomenon

generally related to a mild depression or unhappiness in women in their middle years whose children have grown up or are away at school and who have no interest in life and therefore take to drink.<sup>4</sup>

That the first 2 confirmed human cases due to Eastern equine encephalitis virus in 1968 have been reported in the coastal counties of New Jersey?

The patients are boys, 8 and 12 years of age, who became ill on 17 July and 11 August 1968, respectively. From 22 July to 20 Aug, 33 confirmed cases of EEE in horses have been reported in 8 counties of the state. There have been 26 suspect equine cases.<sup>5</sup>

That recently geologists examined a permit application submitted by the Atomic Storage Corporation for disposal of toxic wastes in a low pressure zone a mile underground?

Geologists expressed concern of ground-water supplies and that while the theory of locking wastes into the zone through external pressure is good, they feared that somehow the substances *might escape and pollute the water*. Once toxic waste is dumped into a 5,000-foot well, it is almost irretrievable. If pressure in the underground reservoir changed and permitted waste materials to start moving, it might be impossible to stop them from polluting water needed by people hundreds of years hence. The Colorado Water Pollution Control Commission is deliberating the proposal.<sup>6</sup>

That data collected from July 1963-June 1964, indicate an estimated 5,029,000 persons with vision impairments, or a prevalence rate of 31.3 per 1,000 population in U.S.?

For 53.0% of the visually impaired, both eyes were involved and 20% (969,000 persons) both eyes were involved to the extent that ordinary newspaper could not be read. Females have a higher rate of vision impairment than males. The prevalence



rate showed a marked increase with age, ranging from 7.7 per 1,000 persons 6–16 years of age to 225.0 per 1,000 persons 75 years of age and over.<sup>7</sup>

That in Tasmania, legislation was passed in 1966 for the addition of potassium iodide in all bread baked on the island?

After 16 years of prophylaxis against endemic goiter among children in Tasmania, a survey carried out in 1949 showed a relatively high prevalence of endemic goiter in most parts of the island, and in 1950 distribution of 10 mg tablets of potassium iodide to all school children was commenced. Since the legislation, periodic surveys have shown that endemic goiter has fallen significantly but not to the vanishing point. Histopathological studies on goitrous tissue and iodine estimation on body fluids confirmed that the goiter in Tasmania is typical of endemic goiter, usually attributed to iodine deficiency.<sup>8</sup>

That a small mummy long-believed to be the infant princess Montemhit of the XXst dynasty is actually a monkey?

An American research team in Egypt has been studying the mummies buried near the Great Pyramid at Giza. From hieroglyphics on the sarcophagus of Queen Makeri, Great Priestess of Amon who died in childbirth about 1,000 B.C., identified

the tiny mummy buried with her as her infant daughter. However, X-rays showed that the contents of the 16-inch long bundle to be an embalmed monkey with glass or stone eyes inserted in the eye sockets. The researchers from the University of Michigan and the University of Toronto, Canada, are making cephalograms of the New Kingdom pharaohs in the Cairo museum to study the dental and genetic changes in the craniofacial growth in the past 5,000 years; the study is sponsored by the Smithsonian Institution, Washington, D.C.<sup>9</sup>

That 129 member nations celebrated the 20th birthday of the World Health Organization recently?

In June 1948, the WHO began with only 19 member nations. Today, it has 129 member nations and a budget of \$56 million.<sup>10</sup>

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## EDITOR'S SECTION

### ANTICOAGULANTS—DRUG INTERACTIONS

As previously noted, the response to coumarin-type anticoagulants may be modified by a variety of commonly used drugs. The coumarins are metabolized by hepatic microsomal enzymes. The metabolic products of coumarin anticoagulants are inactive. Therefore, any alteration in the activity of the enzymes will be reflected in an altered response to the anticoagulant. Phenobarbital, chloral hydrate, griseofulvin, and ethchlorvynol (Placidyl) *increase* the metabolism and *decrease* the anticoagulant activity of coumarins, whereas phenylamidol hydrochloride (Analexin) *inhibits* the metabolism of coumarins and *increases* the anticoagulant effect. The present authors found that glutethimide (Doriden), amobarbital (Amytal), secobarbital (Seconal), and meprobamate *decrease* the anticoagulant effect of warfarin sodium in dogs. To maintain an adequate

anticoagulant effect it was thus necessary to *increase* the dose of warfarin sodium. Conversely, clofibrate (Atromid S) *inhibited* the metabolism of warfarin sodium and *increased* the anticoagulant effect. The administration of clofibrate to dogs on appropriate maintenance doses of warfarin sodium was followed by bleeding. "Any patient receiving oral anticoagulants who has another drug either added or withdrawn from his therapeutic regimen must have careful monitoring of his prothrombin times to avoid these dangerous sequelae."—Hunninghake, D.B. & Azarnoff, D.L. (Univ. Kansas Med. Center, Rainbow Blvd. & 39th St., Kansas City, Kan. [Dr. Azarnoff]), *Arch. Int. Med.* 121:349 (Apr.), 1968.

The list of drugs which influence the anticoagulant activity of coumarins is growing. The following tabulation may be helpful even though it is undoubtedly incomplete. It should be noted that the mechanism

by which various agents increase or decrease the activity of coumarin anticoagulants is not necessarily the same.

## ACTION OF COUMARIN ANTICOAGULANTS

<i>Decreased by</i>	<i>Increased by</i>
barbiturates	anabolic steroids
phenobarbital	Antibiotics, broad spectrum
Amytal	Analexin
Seconal	Atromid S
chloral hydrate	Butazolidin, Tandearil
Doriden	Dilantin
griseofulvin	methylthiouracil
meprobamate	quinidine, quinine
Placidyl	radioactive compounds & X-ray
	salicylates
	d-thyroxine
<i>Increased anticoagulant dosage required for therapeutic effect.</i>	
<i>Decreased anticoagulant dosage required when above drugs are withdrawn.</i>	Hemorrhage may occur if above drugs are added to stabilized anticoagulant regimen.
<i>Decreased prothrombin time.</i>	<i>Increased prothrombin time.</i>

—Clin-Alert, No. 103, May 8, 1968. Permission granted from Science Editors, Inc.

## NEW MSC CHIEF NAMED

The Secretary of the Navy announced the selection of CAPT Emmett L. Van Landingham, Jr., MC USN, for appointment as Chief, Medical Service Corps, U.S. Navy.

CAPT Van Landingham was Commanding Officer of the Naval School of Hospital Administration, NNMC, Bethesda, Maryland. He assumed his new duties on 1 October, succeeding retiring CAPT Robert S. Herrmann, who has held the MSC's top post since 1962.

As Chief of the Medical Service Corps, CAPT Van Landingham will be responsible for directing the functions of the 1600-officer corps providing professional clinical, research, and administrative support to the Navy's Medical Department. He will formulate and administer the policies in all matters affecting the Medical Service Corps, including personnel procurement, training, assignment, distribution, and career management. The Medical Service Corps is composed of six sections, including Supply and Administration, Medical Allied Sciences, Optometry, Pharmacy, Podiatry and Medical Specialist.

CAPT Van Landingham, a native of McCool, Mississippi, entered the Navy in October 1934 and has served in naval medical facilities throughout the world. He enlisted as an apprentice seaman and has served in all enlisted and officer grades through his current rank of Captain, to which he was promoted

on 1 March 1965. He became Commanding Officer of the Naval School of Hospital Administration in August 1964.—Public Affairs Office, BuMed.

## BENEFICIAL SUGGESTION— TRACHEOSTOMY CART

Previously a Tracheostomy Tray was kept in the Supply Cabinet. When an emergency arose, it was necessary to place the tray on a table, or bedside locker in order to use it. Many times there was not room on the table for this tray and it was necessary to run for some other stand or cabinet. Now LCDR Remas suggests taking a bedside locker and having Medical Repair place wheels on it. The Tracheostomy Tray is placed on top of the locker and it can be wheeled to the patient in seconds. The drawer holds the sterile gloves readily available for the surgeon and the shelves below contain the extra equipment needed for the procedure.

An Intravenous Pole is also attached to the side of the cart. On this is hung the plastic pocket arrangement of the various tracheostomy tubes available at a glance. A plastic bag is attached to the rod on the back of the cart for discarded materials. It is recommended that these carts be kept in the Emergency Room, Intensive Care Ward, Contagion Ward, Female Medicine, Pediatrics and Neurology.—Submitted by LCDR Josephine J. Remas, NC USN, Naval Hospital, Charleston, S.C.

## SMALLPOX IN WEST AFRICA

Smallpox is on the run in West Africa after a year and a half of operation of a U.S.-supported eradication campaign in 19 countries.

Dr. Robert Q. Marston, administrator of the Health Services and Mental Health Administration, Department of Health, Education, and Welfare, announced that the disease declined sharply in West Africa during the first quarter of 1968. Throughout the 19 countries, a total of 2,332 cases were reported through January-March, 1968, in contrast with 3,605 for the same period in 1967.

The figures for March show a 70 percent drop from 1,554 in 1967 to 467 in 1968.

Dr. Marston attributed the decline primarily to the efforts of the West African Regional Smallpox Eradication and Measles Control Program, an international assistance project financed by the Agency for International Development and directed by the Health Services Administration's National Communicable Disease Center in Atlanta, Georgia. The Center is headed by Dr. David J. Sencer and its

smallpox-measles program is directed by Dr. J. D. Millar. The program constitutes a major portion of the World Health Organization's global smallpox eradication campaign.

Dr. Sencer said 43 million smallpox vaccinations have been performed throughout the area in which 110 million Africans live. The mass campaign is expected to continue for 2 more years, to be followed by a "maintenance" phase in most countries to assure complete elimination of smallpox.

In previous years for which data is available, smallpox increased in incidence during the first quarter. This year has seen a decline rather than an increase, and early returns for April and May indicate that the decline will continue.

If the present trend continues, smallpox may be eliminated from the area this year. It depends entirely on the Program's capacity to identify small outbreaks and to execute intensive "fire-fighting" operations. Fall usually brings a rise in the number of cases, but this year it appears that smallpox will be at historically low levels in West Africa in August, September, October. Taking advantage of this anticipated low period to search out and eliminate cases of smallpox will provide a reasonable chance of permanently interrupting transmission well in advance of completing the mass vaccination campaign. If this could be done, it will be a unique achievement in the history of disease control, one in which the African nations and the United States could take immense pride.

Dr. Millar said that the program is being carried out by 4,000 African health workers who are assisted and advised by 15 physicians and 31 non-medical health workers from the NCDC. The U.S. is also providing jet injectors, vaccine, and trucks for the effort.

To intensify efforts during the Fall will require the assistance of people not presently associated with the program, such as Peace Corps volunteers, missionaries, teachers, and other groups. These will help in identifying smallpox outbreaks so that vaccination teams can be dispatched quickly to places where the disease is occurring. Such an intensive and precise application of resources could well achieve eradication this year.

"A final victory over smallpox in West Africa is now very definitely in our grasp within the foreseeable future. A reduction in our effort at this point

could cost us an opportunity we'll never have again," Dr. Sencer said.—Health Services and Mental Health Administration, Bethesda, Maryland.

#### CONFERENCE TRAVEL FOR MEDICAL OFFICERS

All Medical Officers should be familiar with the provisions of SECNAV INSTRUCTION 4651.15A which provides guidance for attendance at professional meetings, conferences, symposia, and seminars.

Historically, this instruction results from a memorandum issued 17 April 1967, by the Deputy Secretary of Defense which stated that "it is desirable that all Medical Corps Officers stationed in the United States be offered an opportunity to attend at least one professional medical conference per year on a temporary additional duty basis and that those stationed outside the United States should have the same opportunity, to the extent that their location and military operations permit." The prompting force behind the issuance of the DOD Memorandum was a recommendation in the Report of the Retention Task Force which stated that the inability to continue professional growth is a strong determining factor in the young medical officer's decision to leave the Naval Service.

Funds in support of the program outlined in SECNAV INSTRUCTION 4651.15A were included in Expense Operating Budgets of Naval Hospitals and other activities under the financial support of BUMED. Commands (less BUMED command activities holding Expense Operating Budgets under the appropriation Operations, Navy) are authorized to cite accounting data for centrally held funds. Requests for attendance at civilian sponsored meetings, conferences, symposia, short courses and seminars should be made on the NAVEXOS 12000/2 which may be approved by Commanding Officers of Naval Hospitals or by the first echelon in the chain of command having approval authority in the case of medical officers who are attached to other than BUMED Command Activities.

In order to keep a complete history of medical officers' participation in continuing education, it is essential that copies of all Temporary Additional Duty orders be forwarded to BUMED and BUPERS in accordance with the procedures outlined in SECNAV INSTRUCTION 4651.15A.—Training Branch, BuMed.



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